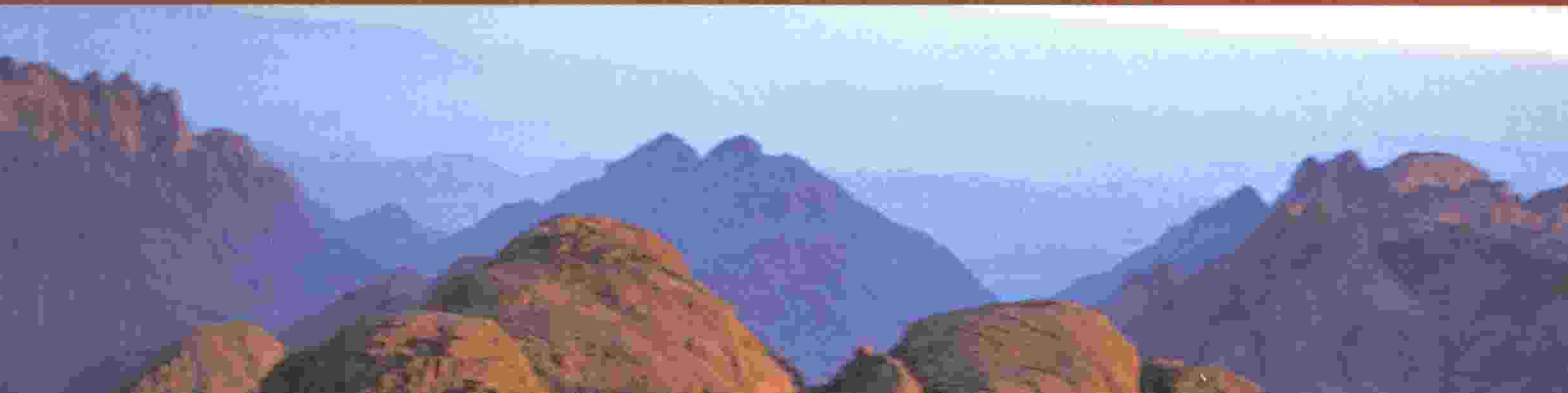
ISRAEL ANTIQUITIES AUTHORITY

IAA Reports 9

MONASTIC SETTLEMENTS IN SOUTH SINAI IN THE BYZANTINE PERIOD

THE ARCHAEOLOGICAL REMAINS



UZI DAHARI

IAA Reports, No. 9

Monastic Settlements in South Sinai in the Byzantine Period
The Archaeological Remains

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With contributions by

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Abbreviations

AB	*Analecta Bollandiana.*
ACO	*Acta Conciliorum Oecumenicorum* I–IV. E. Schwarts ed. Berlin–Leipzig 1924–1940.
ACW	*Ancient Christian Writers, the Works of the Fathers in Translation.* Westminster–London–New York–Paramus, 1946– .
AP	*Apophthegmata Patrum, PG* 65:72–440.
AS	*Acta Sanctorum.* The Bollandists eds. Antwerp–Brussels 1643– .
ʿAtiqot (*ES*)	*ʿAtiqot* (*English Series*).
BA	*The Biblical Archaeologist.*
BAR	*Biblical Archaeology Review.*
BASOR	*Bulletin of the American Schools of Oriental Research.*
BySt	*Byzantine Studies.*
ByZ	*Byzantinische Zeitschrift.*
Byz	*Byzantion,* Revue International des Études Byzantines.
CCSL	*Corpus Christianorum, Series Latina.* Turnhout–Paris 1953– .
CIG	*Corpus Inscriptionum Graecarum.* A. Boeck ed. Berlin 1828–1877.
CIS	*Corpus Inscriptionum Semiticarum.*
CS	*Cistercian Studies.*
CSCO	*Corpus Scriptorum Christianorum Orientalium.* Louvain.
CSEL	*Corpus Scriptorum Ecclesiasticorum Latinorum.* Vienna 1866– .
DACL	*Dictionnaire d'archéologie chrétienne et de liturgie.* Paris 1907–1953.
DOP	*Dumbarton Oaks Papers.* Cambridge, MA 1941–1958; Washington, D.C. 1959– .
EA	*Egyptian Archaeology,* the Bulletin of the Egypt Exploration Society.
ESI	*Excavations and Surveys in Israel.*
GCS	*Die Griechischen Christlichen Schriftsteller der ersten jahrhunderte.* Leipzig 1921– .
GGM	*Geographi Graeci Minores* I, II. C. Müller ed. Paris 1855–1882.
HA	*Ḥadashot Arkheologiyot* (Hebrew). **ח"א – חדשות ארכיאולוגיות**
IEJ	*Israel Exploration Journal.*
IMJ	*Israel Museum Journal.*
JARCE	*Journal of the American Research Center in Egypt.*
JEA	*Journal of Egyptian Archaeology.*
JGS	*Journal of Glass Studies.*
JThS	*Journal of Theological Studies.*
LA	*Studii Biblici Franciscani Liber Annuus.*
MO	*Les Moines d'Orient* I–III. A.J. Festugière ed. Paris 1963.
NEAEHL	*New Encyclopaedia of Archaeological Excavations in the Holy Land.* Jerusalem 1993.
OC	*Oriens Christianus: Römische Halbjahrhefte für die Kunde des christlichen Orients.*
OCP	*Orientalia Christiana Periodica.*
PEQ	*Palestine Exploration Quarterly.*
PG	*Patrologiae Cursus Completus: Séries Graeca.* J.P. Migne ed. Paris 1857–1886.
PL	*Patrologiae Cursus Completus: Séries Latina.* J.P. Migne ed. Paris 1857–1866.
PO	*Patrologia Orientalis.* Grifin and Fr. Nau eds. Paris–Turnhout 1907.
PPTS	*Palestine Pilgrim's Text Society.*
QDAP	*The Quarterly of the Department of Antiquities in Palestine.*
RB	*Revue Biblique.*
ROC	*Revue de l'Orient Chrétien.*
SBFcm	*Studium Biblicum Franciscanum, Collectio Mainor.*
SC	*Sources Chrétiennes.*
TUGAL	*Texte und Untersuchungen zur Geschichte der Altchristlichen Literatur.* Leipzig–Hildesheim 1988– .
WV	*Wissenschaftliche Veröffentlichungen des Deutsch-Türkischen Denkmalschutz – Kommandos.*
ZDPV	*Zeitschrift des Deutschen Palästina-Vereins.*

Acknowledgements

The fieldwork for this book was concluded in the 1970s and the results were presented in my doctoral dissertation, which was submitted to the Hebrew University in 1994. The current publication is based on the archaeological section of that work.

The excavations, research and actual writing involved in the preparation of this study could never have been carried out without the assistance of many friends and associates.

First and foremost I wish to express my gratitude to Prof. Yoram Tsafrir, mentor and friend, who is responsible for instilling in me, as in many other of his students, an enthusiasm for the Byzantine era and desert archaeology in general, and for motivating me to study the Christian monastic movement in particular. I first arrived in Sinai with the intention of carrying out a fluviomorphological study of the streambeds in the granite mountains. Instead, I found myself investigating the populations who, by the sweat of their brow and through sheer steadfastness, have managed not only to overcome the forces of nature and live in the hostile environment of the desert, but to actually make their mark on the morphology of the region.

A special note of thanks to my employers, both past and present: the Society for the Protection of Nature and the Israel Antiquities Authority. The fieldwork was funded by a grant from the *Tzukei David* Field School (near St. Catherine's Monastery); the research, as well as the drawings, translation, editing and production of this book were carried out under the auspices of the Israel Antiquities Authority.

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Above all, this book is dedicated to my wife, Leora, my main source of motivation and true partner, who has constantly been by my side – both in the desert and throughout the many stages of preparation of this work.

Winter, 2000 Uzi Dahari

Preface

The early Byzantine period and especially the fourth to seventh centuries CE saw the prosperity of a Christian monastic movement in the South Sinai Heights and at Raitho on the Gulf of Suez coast. This community was centered around Jebel Musa, which Christian tradition identified with Mt. Sinai. It numbered some six hundred monks dwelling in small, isolated monastic settlements, situated mainly in the granite massif of South Sinai. (See foldout map of South Sinai at the end of this volume.)

Abundant information about the unique nature of this phenomenon is available in numerous sources mentioning Sinai monasticism. For many monks throughout the Byzantine world, this movement represented an exalted aspiration as well as a focus for Christian pilgrims who sought religious traditions related to this region, such as the giving of the Covenant at Mt. Sinai, the miracle of the Burning Bush at the foot of Mt. Sinai and the prophet Elijah's sojourn at Mt. Horeb; moreover, the primeval splendor of the scenery played a role in bringing man closer to God.

The major historical sources can be divided into three types:

A. Historians, church fathers, commentators and geographers, both contemporary and later, writing about Sinai directly or indirectly (in chronological order): Eusebius, Ephrem the Syrian, St. Basil, St. Jerome, Sulpicius Severus, Rufinus, Sozomen, Socrates, Theodoret, John Rufus, Stephen of Byzantium, Cosmas Indicopleustes, Procopius of Caesarea, Evagrius, John Bishop of Nikiu, Theophanes, Eutycius of Alexandria, Simeon Metaphrastes and others.

B. Works of monks who lived and wrote in Sinai, and historical sources referring to the Sinai monks: e.g. Ammonius, Nilus of Sinai, *Apophthegmata Patrum*, Cyril of Scythopolis, John Moschus, John Climacus, Daniel of Raitho and Anastasius of Sinai.

C. Pilgrims who visited the holy sites in Sinai: Egeria, Theodosius, the Piacenza Pilgrim and Epiphanius the Monk.

Additional information can be gleaned from sources such as church documents and correspondence, protocols and rulings of church caucuses. The most significant of these are Justinian's bull, the emperor Marcian's epistle, the correspondence of Pope Gregory the Great and monologues. Information on Sinai prior to the monastic epoch may be found mainly in the works of Ptolemy, Diodorus Siculus, Strabo and Pliny.

This study will not attempt to provide a comprehensive discussion of the historical sources, aside from a summary of the information gained from the sources. Though the monks' christological belief system, origin and way of life greatly influenced the structure and organization of the monastic settlements, it is the primary task of this study to present the relevant archaeological material. Therefore, the historical sources will be analyzed only when they contribute to our understanding of sites; the monastic way of life and beliefs will be considered as a backdrop, imperative to an understanding of the structure of the monastic settlements.

The main bulk of fieldwork on which this study is based was carried out in the late 1970s, when Israel governed Sinai and I lived at the *Tsukei David* Field School. During this period, I became acquainted with the monastic revolution in Sinai, when, for the first time, the region was host to a group which did not practice a traditional economy of pasturage and seasonal semi-nomadism, and cultivated only the minimal amount of food necessary for survival in the desert on a very small parcel of land. I decided to study the archaeological aspect of monastic activities in Sinai during the period under discussion by assembling the relevant data which had been collected over the years in surveys and excava-

tions in the Sinai Heights, by surveying all the granite mountains of South Sinai, and by excavating several isolated monastic settlements, whose distribution in the mountains of South Sinai is a representative sample. During 1978–1980, despite the difficult conditions prevailing, the following sites were excavated: Wadi Sigilliya, Deir Antush, Deir Abu Mghar, Wadi El-Fraʿiya, Shaqif Ed-Deir and ʿEin Najila. New and interesting data concerning monastic settlements and farms in the region were collected with the aid of the guides of the *Tsukei David* Field School and the District Archaeologist of Sinai.

This study has three major aims:

1. Publication of the excavations conducted by the author in Sinai.
2. Publication of the finds from all sites defined as monastic settlements in South Sinai.
3. Providing a general picture of Sinai monasticism based on archaeological data and historical sources.

The relevant information concerning the monastic settlements which have been previously surveyed and published, especially St. Catherine's Monastery, Tell Maḥrad and Jebel Ṭaḥuna in the Feiran Oasis, and Finkelstein's research at Jebel Sufsafa (Mt. Horeb) and Jebel Umm Shomer, will be summarized; the reader will be referred to the published reports of these sites.

Three monastic centers can be distinguished in South Sinai:

A. The Sinai Heights and the area of Jebel Umm Shomer (as a sub-center).

B. The town of Pharan in the oasis of Wadi Feiran, its environs and Mt. Serbal.

C. The environs of the modern city of Eṭ-Ṭur on the coast of the Gulf of Suez.

This study will also briefly discuss the remains of agricultural farms which do not seem to have been inhabited by monks, but whose archaeological remains attest to the scope of activity in the region during the early Byzantine period.

All sites were numbered in running order so as to facilitate consistency between the text, figures and maps.

The number of monks per monastery was calculated on the basis of the number of hermits' cells, dwellings and rooms in the chapels. A key was determined for all the monastic settlements, which assumed that each cell was occupied by a single monk, while structures with two or three rooms housed two monks; the number of monks inhabiting larger buildings was calculated as the number of rooms less two. An extra monk was added to each calculated figure, as it was assumed that not all the hermit-cells were discovered during the survey. The size of agricultural plots did not figure in the calculation of the monastery population count. This key, in the author's opinion, is a reliable indicator of the monastic population during the peak of monastic activity in South Sinai.

The transcription of Arabic names was based on two criteria: (1) the method currently in use by scholars of the Arabic language and its grammar; (2) adherence to the Arabic pronunciation of the Sinai Bedouin as far as possible. Transcription of Arabic names made in the past, including those in recent publications, was not taken into account.

St. Catherine's Monastery is the modern name of the well-known complex. This name came into usage only after the tenth century CE; as this book focuses on research in the early Byzantine period, the name 'the Sinai Monastery' is used when discussing the pre-tenth century remains.

The system of measurement is metric, excluding the discussion of the road system, where the Roman mile was used. The local dunam unit was utilized in measurements of area (4 dunams = 1 acre).

The latest and most precise surveying tools (GPS) were not available at the time of our survey; the grid reference points were defined with map and compass only. There may therefore be small deviations from the exact points.

Introduction

Environmental Conditions

Geographical Background

The Sinai Peninsula is located at the juncture of Asia and Africa, between Egypt and the Gulf of Suez on the west, the Israeli Negev and Gulf of Elat on the east, the Mediterranean Sea on the north and the Red Sea on the south. It is mainly a desert peninsula, covering an area of *c.* 60,000 sq km (Fig. 1). This area is divided into two geographic units, which differ in size and nature. The larger northern part is a flat plain, which drains mainly into the Mediterranean Sea through Wadi El-Arish and other river valleys. This is a sand desert, with several conspicuous limestone mountain ridges which divide it into sub-units (Harel 1976: 7–12 [Hebrew]). The smaller southern part of the peninsula is mountainous, composed of igneous and metamorphic rocks. This mountainous region, whose peak at Jebel Catherine reaches an elevation of 2,642 m asl, is cut by numerous steep valleys. Three major crystalline blocks stand out in this region: Jebel Musa, Mt. Serbal and Jebel Umm Shomer. The steep Tih mountains separate the two parts of the peninsula.

Most of the peninsula was part of Palæstina Tertia during the Byzantine period (Dan 1982: 265–299 [Hebrew]), while only the area to the northwest of the imaginary line which connected the town of Suez (Clysma) with Rafiah belonged to the Augustamnika province, which was administratively linked with Egypt (Figueras 1981: 147–168; 1987: 772–765 [Hebrew]; Tsafrir 1982: 378 [Hebrew]).

The Geological and Morphological Structure

The mountains of South Sinai are composed of metamorphic and igneous rocks which are part of the Arab–Nubian massif. The metamorphic rocks, especially gneiss and schist, represent the earliest composition of the Sinai mountains. These rocks were formed mainly from earlier igneous rocks, which have not been preserved (Ben-Tor 1976: 170–173 [Hebrew]). Several waves of volcanic rocks penetrated into the metamorphic composition, which dated earlier than Pre-Cambrian. These were the result of volcanic eruptions, which created the chain of lofty mountains in the heart of the South Sinai massif. The highest of these volcanic mountains is Jebel Catherine – the summit of Sinai. While Jebel Catherine is the result of lava which spilled out of a volcano, Jebel Musa had once been a volcano, and presently is a volcanic neck. It is possible that Jebel Catherine was formed from the lava of Jebel Musa. The lava flowed rapidly from a very high temperature inside the earth's crust to the cooler temperature of the open air, and solidified too quickly for the various minerals which composed it to crystallize at their own rate, so that the resulting volcanic rock is amorphic (Ben-Tor 1976: 173, 174 [Hebrew]).

Other lavas, which remained in the earth's crust, solidified slowly, while simultaneously rising to the crust. During this process, each mineral was able to crystallize at its own rate. When these rocks were exposed as a result of erosion of the cover rocks above them, or as a consequence of geological faults and tectonic movements which lifted mountain ranges and accelerated erosion in the cover layers, these lavas were exposed in a morphology different from the volcanic rocks, despite their similar mineralogical composition (Flexer 1969: 142–152 [Hebrew]). These rocks, called plutonic, contain various easily discernible minerals and represent the youngest igneous rocks in Sinai. These plutonic rocks, which may be divided into several groups depending on their mineralogical compositions, were later (though still Pre-Cambrian) penetrated by many dikes (Ben-Tor 1976: 174–178 [Hebrew]).

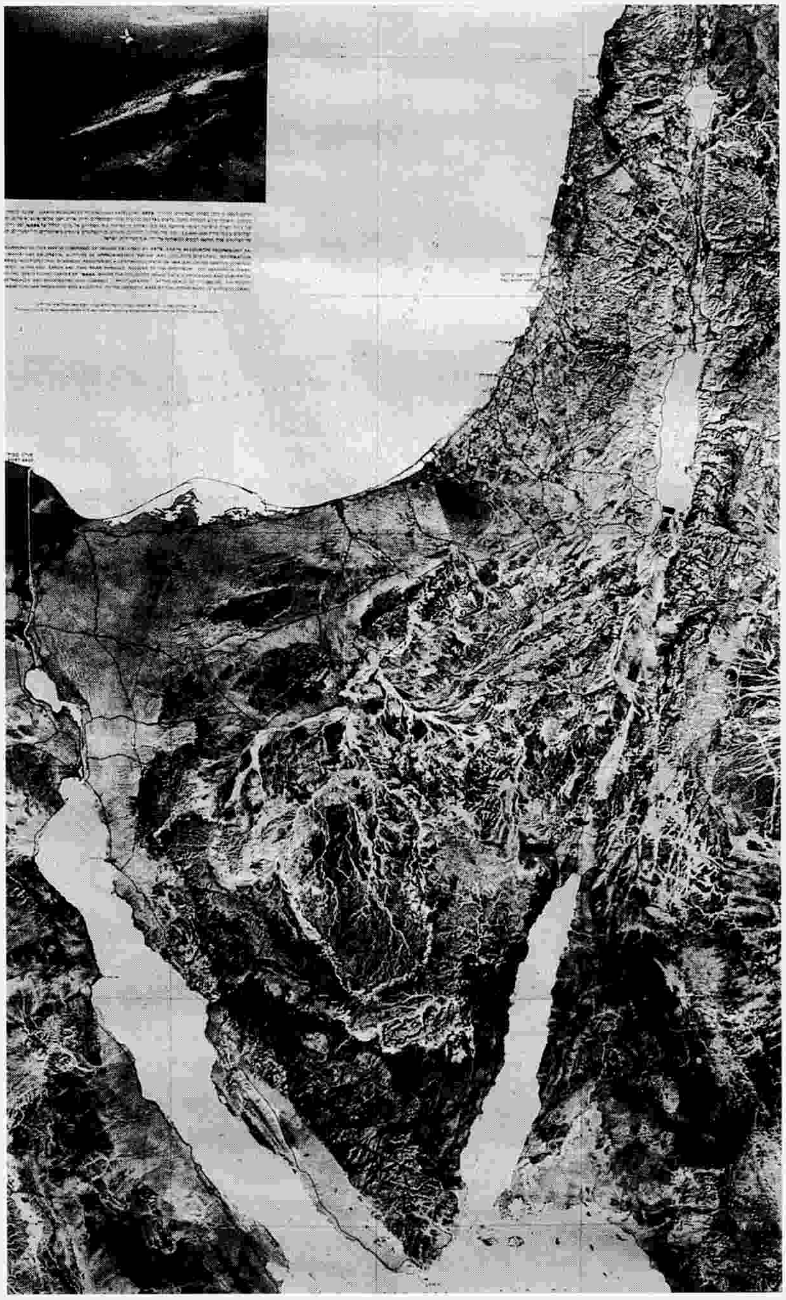


Fig. 1. Satellite view of the Sinai Peninsula.

Granite is the most common of the plutonic rocks in Sinai; less common are sianite and diorite, which are older than the Sinai granite. The granite is composed of quartz (more than 10%), micas made mostly of biotite and muscovite, and feldspars, which are mainly composed of orthoclase and plegioclase. The two main types of granite in Sinai are gray granite, which is older, and the younger red granite.

Igneous rocks may be found in several plutons (mountain ranges) in Sinai. Red granite is found mainly in the following plutons: Iqna, Iqna Catherine, Iqna Qid, Iqna Umm Bugma, Ṣaḥara and Girgar.

When the plutonic rocks were formed in Sinai, they applied great pressure on the earth's crust, resulting in cracks and faults, as well as in the rising and sinking of the various ranges. The resulting cracks and different

elevations paved the way for erosion and gravity to work on the ridges which were forming (Eyal et al. 1987: 21–41 [Hebrew]).

The Syrian–African Rift, which began to affect this region some 30 million years ago, created an entire system of geological faults parallel to the two main faults in the Gulf of Suez and the Gulf of Elat. The latter are the largest, longest and most important features in the present landscape of Sinai. Following the end of the main activity of the Syrian–African Rift in Sinai, it is mainly the forces of erosion that created the landscape and the drainage basins, as we know them today.

The red granite excels in its ability to withstand erosion, so that 60–85% of its area is composed of smooth rock surfaces, with few soil slopes or pockets. Most of the monasteries were built on this formation as erosion of this type of rock is immature and mostly arcosic (Hezkiyahu 1977: 1–9 [Hebrew]).

As a result of the building and erosion forces, a lofty mountainous landscape was formed in the heart of South Sinai, containing variations in elevation reaching hundreds of meters between the peaks and the valleys located hundreds of meters away. This landscape, though scenic, was not conducive to human settlement, apart from a few hunters and shepherds; access was inconvenient and the desert climate was harsh. This situation changed with the advent of the Byzantine monastic movement.

A region composed of metamorphic mountains and heights surrounds the igneous mountains in South Sinai. Beyond this are areas of sandstone, which contain several oases, the largest and most important being the Wadi Feiran oasis, which had been flooded during the Pleistocene era (Issar 1969: 213–216 [Hebrew]), and still has an abundance of upper ground water today (Ben-Zvi and Gilead 1970 [Hebrew]).

Aside from the alluvial fans of the large river valleys, there are few plains near the coast of the Gulf of Elat. The mountains descend steeply to the sea and prevent the convenient passage of a main longitudinal road along the coast. A different situation prevails in the Gulf of Suez, since its south part contains a large, long valley – El-Qa, which runs parallel to the sea between the mountains and the coast. A large oasis is located near the town of Eṭ-Ṭur, at the north end of the valley, adjoining the sea.

The Climate

The Sinai Peninsula is located in the global desert belt, and is considered one of the most arid deserts in the world (Yaffe 1987: 331 [Hebrew]). However, the high average altitude of the South Sinai mountains has some effect on the climate. Annual precipitation is very low and irregular. Below are selected data from the publications of the Israel Meteorological Service (Tables 1 and 2).

Table 1. Temperatures and Humidity Counts at Sample Sites

	Max. Temps. (July–Aug. Averages)	Min. Temps.	Relative Humidity
Sharm Esh-Sheikh (at sea level)	37° (record 45°)	15° (record –8°)	35–45% (year round)
Er-Rabba Plain (1,600 m)	30° (record 34°)	1° (record –5°)	40–50% (Nov.–Feb.) 20–40% (March–Oct.)
Jebel Catherine (2,642 m)	24° (record 33°)	–4° (record –14°)	20–45% (year round)

Table 2. Precipitation Data for the Years 1970–1976 (Kesler 1982: 62 [Hebewl])

Year	Dahab	Nuweiba	Sharm Esh-Sheikh	Eṭ-Ṭur	Er-Rabba Plain (near St. Catherine's Monastery)
1970/71	17	21	11	25	80
1971/72	24	20	13	9	34
1972/73	11	23	4	3	19
1973/74	10	22	3	10	63
1974/75	40	58	38	49	80
1975/76	2	3	–	6	106

"Most of the precipitation in Jebel Catherine is in the form of snow; though no measurements have been carried out there, it is probable that the annual average exceeds 100 mm. The average rainfall in the high mountainous region is five to ten times as much as in the rest of Sinai.

On the average, Sinai mountains are characterized more by cold than by heat; thus, humans, flora and fauna need to invest more energy to cope with the chill rather than the heat. The numerous frosts affect the varieties of plants, as well as the agricultural potential" (Kesler 1977 [Hebrew]).

The Flora

The Sinai Peninsula has a desert climate, so that most of its area is characterized by desert plants well adjusted to aridity. The dominant plants in South Sinai are *Artemisia monosperma* (in the sands), *Zygophyllum dumosum, Anabasis articulata, Acacia, Atriplex* and other desert plants. In the North Sinai mountain ranges the main plants are *Juniperus phoenicea* trees, which are relicts of a more humid climate. The palm tree predominates in the oases. In areas with an elevation of over 1,000 m asl, the flora gradually changes from that of the desert to that typical of the steppes; *Capparises* begin to appear, alongside numerous other plants. Above 1,600 m, steppe flora, as well as high steppe flora, appear, such as *Phlomis aurea, Tanacetum santolinoides, Artemisia herba-alba, Crataegus sinaicus, Cotoneaster orbicularis* and *Pistacia khinjuk*. Even a representative of Alpine flora, such as *Primula boveana*, is an endemic plant in Sinai (Danin 1987: 473–492 [Hebrew]).

There are several factors which influence the plants' growth: topography, especially the orientation and slope, which determines the amount of direct sunlight and thus the temperature. The type of rock and its fissures affect the water supply, as well as the type of soil created from rock erosion. The microclimate determines the localized accumulation of rainwater, as well as the shade and the less windy areas. All these factors greatly influence the types of flora.

In general, it may be said that the red granite mountains contain more Irano-Turanian, Mediterranean and even Alpine flora than the high volcanic or metamorphic mountain ranges. This is the result of a better water supply available in the red granite, since the rock surfaces drain a large amount of runoff water into the mountain valleys (Arabic *farsh*) and wadis, where they collect in rock crevices and in the arcosic soil (Arbel and Pervolotsky 1979: 54–61 [Hebrew]; Danin 1987: 473–494 [Hebrew]).

The Fauna

Most of the animals found today in Sinai are of desert origin; a few are tropical, having reached Sinai along the Syrian–African Rift. Only a few of the animals are of steppe or Mediterranean origin.

Among the large mammals found in South Sinai are ibexes (in the mountains), deer (the plains), rock hyraxes, wolves, bobcats and foxes. As late as only several generations ago, it was possible to find tigers and buffaloes; however, these have been hunted to extinction following the introduction of firearms into the region.

The main rodents in Sinai are gerbils, bushy-tailed gerbils, golden mice and Cairo mice.

The birds include desert partridges, wheatears, desert larks, desert swallows, scrub warblers, ravens, rosefinches and rock partridges.

The main reptiles include fringe toads, desert lizards, vipers, Sinai lizards, viper moles, African sand snakes and striped skinks. A wide range of insects and butterflies are found in Sinai as well.

The variety and distribution of the typical fauna in Sinai indicate a larger concentration of animals of steppe and Mediterranean origin in the high mountains than in the plains (Pervolotsky 1979: 62–69 [Hebrew]).

The Local Population

Nabateans and Other Inhabitants

No Nabatean settlements were identified in South Sinai which could be dated with confidence to before the first century CE. Painted Nabatean sherds were found in the ruins of the town of Pharan in Wadi Feiran (Rothenberg 1970: 4–29; Grossmann 1996: 19–29). However, the production of these vessels continued in the second and third centuries CE as well, and Grossmann's excavation did not yield many finds earlier than that century (Grossmann 1984–1985: 75–81; 1996: 19–29).

Nabatean activity in North Sinai is abundantly documented (Oren 1980: 133–146 [Hebrew]). A Nabatean site (apparently of military nature) is located at the summit of Jebel Ajameh in Central Sinai. The site includes a fortress, two additional structures, an army tent-camp and water reservoirs (Avner 1982: 28

[Hebrew]). A Nabatean fortress was found at Dahab (Meshel 1982: 33–35 [Hebrew]). A Nabatean temple (Levi 1977: 173–176 [Hebrew]; Negev 1980: 342–347 [Hebrew]) is located on the summit of Jebel Maneijeh in the east of the Wadi Feiran oasis. Another Nabatean temple was identified on the summit of Jebel Serbal (Avner 1982: 25–32 [Hebrew]). The two centers in Central Sinai and at Dahab served military functions and have no direct affinity to civilian settlements in South Sinai. The two temples near Feiran have not been dated with certainty; a single coin of Avdat III (9–30 CE) found on the summit of Mt. Serbal does not constitute proof that the temple was in use in the first century CE. Though the temples in the area of the Feiran Oasis and Mt. Serbal were considered sacred by the Arab tribes who inhabited South Sinai, and there may have been some pilgrimages to these sites, this does not constitute evidence of a permanent Nabatean settlement and cultural *floruit* in South Sinai prior to the establishment of the town of Pharan.

Thousands of inscriptions in the Nabatean language were found in South Sinai. Some of these inscriptions were initially discovered as early as the eighteenth and nineteenth centuries (e.g. Pococke 1743; Niebuhr 1774; Burckhardt 1822; Grey 1832: 147–155). In the nineteenth century, Beer (1840) deciphered the language and identified it as Nabatean. Great strides were made with the deciphering of some 2,000 Nabatean inscriptions by Benedite (1889; 1890) and Euting (1890). Their work paved the way for the compilation of a comprehensive corpus of Semitic inscriptions from Sinai (*CIS* II: Moritz 1916: 27–32). During the 1960s and 1970s, numerous Nabatean inscriptions were discovered (not in the *CIS*). The largest concentration of these inscriptions – from Wadi Ḥajaj near ʿEin Ḥudra – was published by Negev (1977; 1980: 347–357 [Hebrew]). Though it has been suggested that there are more than 10,000 Nabatean inscriptions in Sinai (Avner 1982: 27 [Hebrew]), there is no confirmation of this number. Up to the present day, some 3,000 Nabatean inscriptions from Sinai have been published. Only few of these are dated, the earliest to 151 CE, while the majority of the dated inscriptions are from the second and third centuries CE (Negev 1967: 250–255; 1980: 337 [Hebrew]).

The late date of the inscriptions, along with the dearth of Nabatean finds in South Sinai, confirms the view held by most scholars that the majority of inscriptions postdates the Nabatean kingdom (Meshel and Finkelstein 1980: 379–384 [Hebrew]; Negev 1980: 333–378 [Hebrew]). Avner maintains that the earliest Nabatean inscriptions in Sinai are from the third or second century BCE (Avner 1982: 28 [Hebrew]). An open question, which still remains to be approached, is who was responsible for these inscriptions: Nabateans who came to the Sinai as pilgrims, merchants or miners of turquoise and copper, or Nabateans who were permanent inhabitants of Sinai from as early as the first century CE (Negev 1980: 354–357 [Hebrew]). Possible candidates are also the Arab tribes inhabiting Sinai, who learned the Nabatean language at a relatively late stage (Meshel and Finkelstein 1980: 379–383 [Hebrew]). Meshel proved that the distribution of the Nabatean inscriptions was not necessarily consistent with the road system or location of their holy sites, so that at least some of the inscriptions were probably written by semi-nomadic elements.

The historical sources make little reference to the local population in Sinai earlier than the fourth century CE. Diodorus of Sicily presents a description initially by Agatharchides of Knidos, dating to the second century BCE. Agatharchides fills four chapters with a narration on a cruise which began in the Suez and continued southward to Bab El-Mandeb (Solzbacher 1989: 44–47). In Chapter 85 he describes the palm groves in Feiran (according to Negev 1983: 240 [Hebrew]), or in Bir Abu Suweira (Solzbacher 1989: 44–47), as well as at a nearby temple; he calls the local populace 'barbarians' (βαρβαροι; Negev 1983: 240 [Hebrew]). In Chapter 86 he continues the description of Sinai, and in Chapter 87 he describes the borders of Sinai: in the north Arabia Patræa, past which is Palæstina, the island of Tiran(?), as well as the Arab nations – Geraites and Minaites (Γερραῖοι και Μιναῖοι). In Chapter 88, he writes about the Maranites and Garindans (Μαρανῖται μετὰ δὲ ταῦτα Γαρινδανεῖζ) who transported goods from Sinai to the Gulf of Elat; his description includes the Gulf of Elat, which was populated along the coast, as well as the mountains and many villages of Arabs, called Nabateans (...πολλαῖζ κώμαιζ 'Αράβον τῶν προσαγορευομένῶν Ναβαταίν). The latter were numerous and possessed many flocks (Tsafrir 1990: 152, 153 [Hebrew]). From Agatarchides' report, we learn that the Nabateans were farmers and shepherds in Sinai, while the Maranites and Garindans (assuming that these are to be identified with the Minaites and Geraites mentioned in Chapter 87) were merchants. Tsafrir (1990: 153 [Hebrew]) postulates that the Maranites were Pharanites, inhabitants of the Wadi Feiran oasis, while the Garindans resided in Wadi Gharandal in West Sinai.

Strabo, writing at the end of the first century BCE and the beginning of the first century CE, also describes the Minaites and Geraites, who transported frankincense and myrrh from South Yemen (Strabo 16, 4, 4). Along with this description, Strabo later quotes the geographer Artemidoros of Ephesus, whose work dates to *c.* 100 BCE, though most of his writing has not been preserved (Strabo 16, 4, 18). This narrative is similar to that of Agatharchides, who also described the water-rich palm groves in South Sinai, as well as the Minaites and Geraites, who imported perfumes to Palestine. He then describes a coast which belonged to the Maranites, some of whom were farmers and others – tent dwellers. Following the massacre of the Maranites by the Garindans on one of their holidays, the latter took control of the region.

Pliny (*NH* V, 65; VI, 156) notes the names of numerous tribes who inhabited Arabia; however, it cannot be definitely determined whether this pertains to Sinai. He mentions precious stones – 'Sefanos' or 'Pharanites', the origin of whose name might have been in Pharan.

From the description of Arabia Petræa provided by Ptolemy (V, 17,1), dating to the mid-second century CE, it appears that Central and South Sinai belonged to Arabia Petræa, and included the village of Pharan.

Since we are unable to unequivocally determine whether the inhabitants of South Sinai called themselves Nabateans, or were regarded as such by others during the first centuries of this millennium, we may observe that during the hundreds of years prior to the inception of Sinaitic Christian monasticism, the southern part of the peninsula was part of Arabia, and was inhabited by Arab tribes who were merchants, shepherds and farmers (in the oases only). All or part of these tribes spoke and wrote the Nabatean language, at least from the second century CE.

The Saracens

During the Byzantine period, the name 'Saracens' became the most common epithet for the semi-nomadic Arab population in the East. The earliest appearance of this name was the mid-second century CE, when Ptolemy called part of the inhabitants of Sinai by this name (V, 16, 3). In his wake, this became the general term defining the nomadic desert Arabs. This name was used in Greek and Latin writings, but was not accepted by the Eastern peoples who did not communicate in these languages (especially the Jews and Christians who spoke various strains of Syriac). When Greek and Latin texts containing the term 'Saracen' were translated into Semitic languages, the expression used was 'Arabs' (Christides 1972: 331).

Eusebius, in his *Onomasticon*, relates that the town of Pharan was located near the Saracens in the desert (166, 12–15); this is confirmed in Jerome's Latin translation of the *Onomasticon* (167, 14–17), though he adds that the Saracens are nomads in the desert.

The origin of this name is not clear. Sozomen was the first to suggest that the name originated from 'Sarah', which emphasized the legitimacy of the Arabs as descendants of the legal wife, rather than the concubine Hagar (the term 'Hagarens' was employed later, at the beginning of Islam). Following is the quote from Sozomen:

> Ἀποτριβόμενοι δὲ τοῦ νόθου τὸν ἔλεγχον, καὶ τῆς Ἄγαρ τῆς Ἰσμαὴλ μητρὸς τὴν δυσγένειαν, δούλη γὰρ ἦν, Σαρρακηνοὺς σφᾶς ὠνόμασαν, ὡς ἀπὸ Σάρρας τῆς Ἀβραὰμ γαμετῆς καταγομένους (Sozomen *HE* VI, 38).

Following this source, medieval historians adopted this explanation (Christides 1972: 331). An alternative explanation for the name was proposed by the Arab scholar P. Hitti, who maintained that the name was derived from the Arabic *sharq*, meaning east; thus, the name pertains to those peoples who inhabited the eastern part of the empire (Hitti 1946: 43). I. Shahid suggests that origin of the name was *shirqa* – allies. This then is an Arab term, which is analogous to the Greek *foederati* (Shahid 1984a: 123–138). (For an extensive discussion on the origin of the name, see Graf and O'Connor 1977: 52–66.)

In Late Roman and Byzantine sources, there are numerous references to Saracen soldiers. For example, in the *Notitia Dignitatum* of the Eastern provinces, many Saracen cavalrymen were mentioned, such as in the province of Phoenicia (Seeck 1876: XXXIII, 27, 28) and in Egypt (Seeck 1876: XXVIII, 17). Eusebius writes that the Saracens were barbarians living in the mountains of Arabia, who captured many Christians and sold them into slavery (*HE* VI, 42, 4). The Byzantine attitude to the Saracens is ambivalent; on the one hand, the latter served as cavalry, mercenaries or *foederati* who guarded the border in lieu of payment. On the other hand, they are pictured as unreliable in the hour of need. Ammianus Marcelinus describes the Saracens in a negative light, despite their alliance with Julian in his war against the Persians in 363 CE:

> But the Saracens, who are not wanted as either friends or foes, would be on the rampage, rapidly destroying everything in sight, swooping down like

> savage birds... (during the battle with the Persians). These people (the Saracens), whose first settlement extends from the Assyrians till the banks of the Nile and the borders of the Blemmyes, are all men of war, half naked, and wearing a striped robe... With the aid of swift horses and gaunt camels they wander everywhere, in times of peace as in times of strife. They will never be caught with their hand on a plough, and will never plant a tree or attempt to seek out a living from tilling the soil. Rather, they always wander over vast areas, homeless, with no permanent settlement or law... They always live a nomadic life. Their sustenance comes from the flesh and milk of the animal; aside from this, they use various herbs, as well as birds. Many of them have I seen that know nothing of the use of wheat and wine. This ends my account of this corrupt people (Ammianus Marcelinus 14, 4).

Ammianus (1, 6, 23) writes of the treachery of the Saracen auxiliaries against the Byzantines, immediately following the death of Julian. Not only did they not remain loyal, they went so far as to raid the retreating army.

John Cassian describes the Saracens' slaughter of the monks near Teqoʿa in the Judean Desert (*Collationes* VI, I: *PL* 49: 643–645). This might be the attack referred to by Jerome, detailing the raid of the barbarians at the borders of Egypt, Palestine, Phoenicia and Syria in 410 CE (*Epistula* CXXVI: *PL* 22: 1086).

The ambivalent attitude of the Byzantines toward the Saracens is underscored in Procopius of Caesarea's account of the Saracen Ghassanide philarch 'Aretas', who was appointed king (βασιλεύς) of all the Saracens serving in the Byzantine empire by Justinian in 529 CE; this position came as a counteraction against Al-Mondir, who served the Persians (*Wars* I, XVII, 45–48). However, Aretas betrayed his loyalty to the Byzantines in the time of need; he was the paradigm, which determined the Byzantine attitude to all the Saracens. The fact that the defense of the eastern borders was left in the hands of the Saracen philarchs contributed to the rapid conquest of the eastern districts by the Arabs in the seventh century CE (Christides 1970: 5–13).

The disposition of Sinai monks to the Saracens is ambivalent as well. Several Saracen tribes converted to Christianity as early as the fourth century CE, such as the Pharanites, who were considered trustworthy and supported the monks; however, they converted to Islam immediately after the Arab conquest. Some tribes were at times loyal to the monks, at other times even massacring them. Anastasius (*Narrative* 10) sheds light on the instability of the Saracens. Saracens served as guides and emissaries for the monks and inhabitants of the Negev (Anastasius, *Narratives* 12, 24, 25; Neṣṣana: Papyrus 51, Kraemer 1958: 146). Neṣṣana, Papyrus 89, shows that aside from being nomads, they also raised flocks, escorted caravans and were merchants (Kraemer 1958: 251–260).

Aside from the remains in the town of Pharan (see below), and the scanty remains near Eṭ-Ṭur, no archaeological remains (settlements and graves) could be dated with certainty to the second to seventh centuries CE, and thus be related to the Saracen tribes in Sinai. This can partially be explained by historical evidence that these people were semi-nomadic tent dwellers.

In summary, it may be concluded that the term 'Saracen' of the Byzantine period is equivalent to the term 'Bedouin' today.

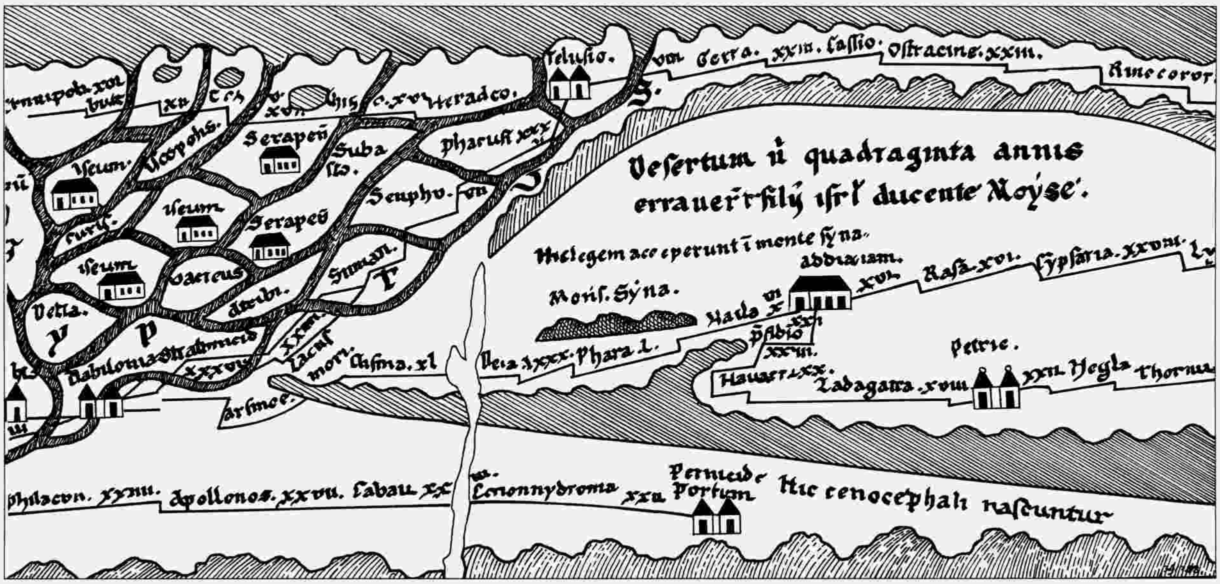
The Road System

Three factors affect the course of a route: (a) the source and the destination; (b) the topography (choosing the shortest route over the most conducive terrain); (c) the water sources and settlements along the route. Factor c, especially the water sources, is critical in determining desert roads; at least one such source for each walking day was necessary along these routes.

The chief destination of all the main roads from Palestine and Egypt to South Sinai during the Byzantine period was Mt. Sinai and the Sinai Monastery. Sinai pilgrimage movement was tempered by the vast distances traveled along difficult desert routes in a harsh climate, with no settlements along the way. A pilgrimage to Mt. Sinai, commencing in Jerusalem and ending in Alexandria, took 36 to 45 days, depending on the number of rest days. Such a journey entailed great physical strain, high risk and formidable cost. In order to minimize the danger and the expense, pilgrims would join large pilgrim or trade convoys.

Historical Sources

The Peutinger Table (Plan 1): This map was apparently drawn in the fourth century CE (Miller 1916: Cols. 53–103). It was composed from numerous sources, and thus contains segments which reflect the road situation during the early Roman period, as well as roads which were later added when the map was revised. The roads of Sinai in this map have been widely discussed



Plan 1. The Peutinger Table.

(cf. Finkelstein 1978 [Hebrew]: 71–79; Mayerson 1981: 167–176, with numerous references). Two major roads appear in Sinai: one crosses North Sinai and is unrelated to South Sinai, while the other road begins at Clysma (the town of Suez), and from there continues to a place ending in …DEIA; the beginning of the name was not preserved. The distance from Clysma to this place was 40 miles. From there to the next station, which was Pharan ('Phara' on the map), the distance was 80 miles. The distance from Pharan to Elat was 50 miles. Mt. Sinai appears on the road near Pharan, though there is no way station nearby. While the distances mentioned to Pharan are close to reality, the distance cited from Pharan to Elat is completely unaccountable. According to the map, the total distance covered by the road was 170 miles; this tallies with the distance of the direct route from Clysma to Elat along a road, which was later termed Darb El-Hajj. Because of this, Miller (1916: Cols. 813, 814), and in his wake Sachsse (1928: 265–268), maintained that the road shown in the map is the direct route, and that 'Pharan' mentioned there is the town E-Naḥel. Finkelstein proposes an alternative explanation, wherein the map-maker did not actually know the route, and confused the two routes – a direct route, *c.* 175 miles long, and a long route, which the map-maker knew from other historical sources, thus including in the latter Pharan and Mt. Sinai nearby. We contend that there is a corruption in the map, and the distance from Pharan to Elat should be CL (150 miles) – not L (50 miles). The distances marked along the road are given in derivatives of ten miles, which indicate that the map-maker was not actually acquainted with the road (Mayerson 1981: 170–171).

The station between Clysma and Pharan (whose name ends in DEIA), is located 40 miles from Clysma; this distance suits Wadi Gharandal. As will be seen below (Egeria, the Piacenza Pilgrim and others), this was a central stop along this road. In our opinion, the missing name should be reconstructed as ARANDELA: the Latin letters I and L are similar, and apparently were exchanged (Dahari 1979: 17 [Hebrew]). Miller's proposal to read this name as MEDEIA, which he identifies with the station in Wadi Medila in the Tih mountains, is unacceptable (Miller 1916: Col. 820). Wadi Medila is not located along the main road, and the name itself is a modern one used by the Bedouin today. Mayerson, though he does not accept Miller's identification with Wadi Medila, uncritically agrees with the reconstructed name MEDEIA (Mayerson 1981: 170).

In summary, it is our opinion that the road from Clysma to Pharan and to Elat in the Peutinger Table is as follows: from Clysma to Gharandal – *c.* 40 miles; from Gharandal to Pharan – *c.* 80 miles; from Pharan, by way of Mt. Sinai to Elat – *c.* 150 miles; these are close to the true distances.

Egeria: Egeria arrived at Mt. Sinai in 383/4 CE, on a pilgrimage which departed from Jerusalem at the end of November. She went through Pelusion, Clysma and Pharan to Mt. Sinai, and from there, by way of the Land of Goshen, returned to Jerusalem in January 384 CE (Wilkinson 1971: 29; the time schedule proposed by Wilkinson is accepted in general terms, though it should not be viewed as incontestable). This journey was a round trip along the very road shown in the Peutinger Table.

Along the road from Jerusalem to Mt. Sinai, Egeria stopped at 22 stations: 10 until Pelusion, 4 from Pelusion to Clysma, 3 between Clysma and Gharandal, 4 between Gharandal to Pharan, and a stop between Pharan and Mt. Sinai (Egeria 1.1–6.4; Peter the Deacon v9–y17).

Theodosius: The Latin composition attributed to Theodosius (Geyer *CCSL* 175: 113–125) was dated to 518–530 CE (Tsafrir 1979: 63 [Hebrew]). Chapter 27 describes the roads from Jerusalem to Mt. Sinai. The shortest and most direct route included a total of 18 stations, as follows: 3 from Jerusalem to Elussa, 7 from Elussa to Elat, 8 from Elat to Mt. Sinai. The long route (via Pelusion, Clysma and Pharan) had a total of 25 stations, 3 stations more than in Egeria's description.

The Piacenza Pilgrim: The anonymous Piacenza Pilgrim also began his journey to Mt. Sinai from Jerusalem; it lasted 18 days until Mt. Sinai. He passed through Eleutheropolis, Ashqelon (Ascalon), Gaza and Elusa (32–34). Twenty miles from Elussa, he arrived at Castrum (Neṣṣana or Miẓpé Shivta [El-Mishrepha] (*NEAEHL* 3: 1059–1061). From there, it apparently took him six days to arrive at Elat, and another eight days from Elat to Mt. Sinai (35–37, 40; see below the extensive discussion on the Piacenza Pilgrim, with references). There apparently was only one station between Mt. Sinai and Pharan despite the great distance (31 miles). There were several stations between Pharan and Sorundella (Gharandal), where there was a church, as well as two pilgrim inns. From Gharandal he continued to Clysma and to Egypt (41). The number of stations between Mt. Sinai and Clysma is not mentioned.

Epiphanius the Monk: Epiphanius the Monk (Donner 1971: 42–91) reached Mt. Sinai following the Arab conquest, after having visited Egypt. From the monastery of St. Antonius he arrived at the spot where the Children of Israel had crossed the Red Sea (apparently this was Clysma, though he does not name the site); from there he continued to Raitho, which he identified with Elim. He then traveled five days to Mt. Sinai (§7). His journey then took him from Mt. Sinai to Thebes in Upper Egypt, a stretch which lasted eight days (§8). This description, which postdates the Arab conquest, is problematic. Wilkinson suggests that Raitho, which is identified with Elim, is really Gharandal, which has also been identified with Elim. It took five days to get from Raitho/Gharandal to Mt. Sinai, via Pharan. From Mt. Sinai, the only possible way to reach Thebes in eight days was through Wadi Isla to Eṭ-Ṭur, from there to cross the Red Sea by boat, and then to traverse the eastern Egyptian desert to Thebes (Wilkinson 1977: 118, Map 35).

The route proposed by Wilkinson is sound. The absence of Pharan in this description may be explained by the fact that the town was in ruins at the time that Epiphanius passed the oasis on his way to Sinai.

We propose an alternative, based on the improbability of Epiphanius' identifying Raitho at Gharandal, since the town of Raitho flourished after the Arab conquest (see below, p. 146). In our opinion, he went down the coast from Clysma to Raitho, and from there to Wadi Isla and to the Wadi Muwajed ascent to Mt. Sinai, following the pilgrims' route, whose importance increased after the Arab conquest. While this proposal does not coincide with the number of walking days Epiphanius mentions between Raitho and Mt. Sinai (our route entails only two–three days of walking), it is supported by the archaeological record (see below).

Anastasius the Monk: It is clear from Anastasius' narrative (Nau 1902b: 60–89) that the main pilgrims' road at the end of the sixth and beginning of the seventh centuries CE ran along the eastern route, i.e. via the Negev (or the King's Highway in Arabia) to Elat, and from there to Mt. Sinai. Groups of hundreds of pilgrims would travel this route.

Summary

The historical sources clearly show that there were two main roads from Jerusalem to Mt. Sinai. The shortest and most direct route led via Elusa and Elat, and had 18 way stations. The longer, but more secure road ran along Augustamnika Provincia, Clysma, Gharandal and Pharan, with some 25 stations along the way.

The average distance between stations was *c.* 20 miles, though the deviations from this norm were great due to the need for water sources along the way.

Topography, Water Sources and Archaeological Remains

(See Plan 2 and foldout map)

The Road from Aila (Elat) to Mt. Sinai

Day 1: The road departs from Elat to ʿEn Neṭafim, and from there on, to Ras El-Naqb. At that point, Darb El-Gaza meets Darb El-Hajj. From this juncture, the road continues westward to Wadi Aḥariti in the east of the Moon Valley. The first way station was located in Wadi Aḥariti; the wadi contains a concentration of rock-carved Nabatean inscriptions, as well as a Greek inscription: 'In memory of Uphersis' (map ref. 64112260 UTM). Appelbaum dates this inscription to the third century CE (pers. comm.). The road from Elat runs 18 miles, with its first part an ascent, the rest – level.

Day 2: From Wadi Aḥariti, which belongs to the Pharan drainage basin, the road continues southward, crossing the watershed with Wadi Ḥisi, and reaching Bir El-Ḥisi at map ref. 652251 UTM. This stretch of the road is *c.* 22 miles long.

Day 3: From Bir El-Ḥisi, the road continues along Wadi Hisi to the end of Wadi Waṭir and from there on, along Wadi Waṭir to Bir Jediq, near Sheikh Atiya (map ref. 645234 UTM). This part of the road is a descent *c.* 17 miles long.

Day 4: From Bir Jediq the road continues down Wadi Waṭir, along a convenient path to ʿEin Fortaga, at map ref. 653214 UTM – a descent *c.* 19 miles long.

Day 5: From ʿEin Fortaga, the road ascends Wadi Gazala, crossing the watershed, and ascending Wadi Ḥudra to ʿEin Ḥudra at map ref. 638197 UTM. This segment of the road is *c.* 19 miles long.

Day 6: From ʿEin Ḥudra, the road continues to the southwest through a sandstone landscape, reaching Wadi Saʿal, and a water source at Bir Saʿal, at map ref. 626183 UTM. This road is *c.* 17 miles long. There are numerous rock paintings along the road, as well as a rock inscribed with many crosses, and Nabatean, Greek and Arabic inscriptions (unpublished). This rock is located at map ref. 62731896 UTM, near the seasonal water source known as 'Masaq El-Bedan' (Arabic 'waterhole of the ibex') by the Bedouin. An alternative was not to continue to Bir Saʿal, but rather, to proceed from Masaq El-Bedan to the west, to the Marah Valley; at the latter, on the sandstone hill known as 'Hadabat Sura' (Arabic 'sandstone hill') by the Bedouin (map ref. 61811888 UTM), are many rock paintings, as well as Nabatean and Greek inscriptions (unpublished).

Day 7: From Bir Saʿal (or from Hadabat Sura), the road ascends Wadi Saʿal and its continuation, Wadi Umm Raʿyan, to a well located near Sheikh Faranja at map ref. 603177 UTM (near the St. Catherine airport). This road is *c.* 18 miles long.

Day 8: The road continues from Sheikh Faranja to the Watiya pass, and from there to the Wadi Esh-Sheikh ascent to Mt. Sinai. This road is *c.* 18 miles long.

Summary: The entire road is *c.* 148 miles long, passing through comfortable terrain, with no difficult ascents nor many passes; every walking day meets at least one water source (in most cases merely one!). Though the approach from Elat brings the visitor from sea level to an elevation of *c.* 1,600 m asl, this ascent is barely sensed, and the return is similarly convenient.

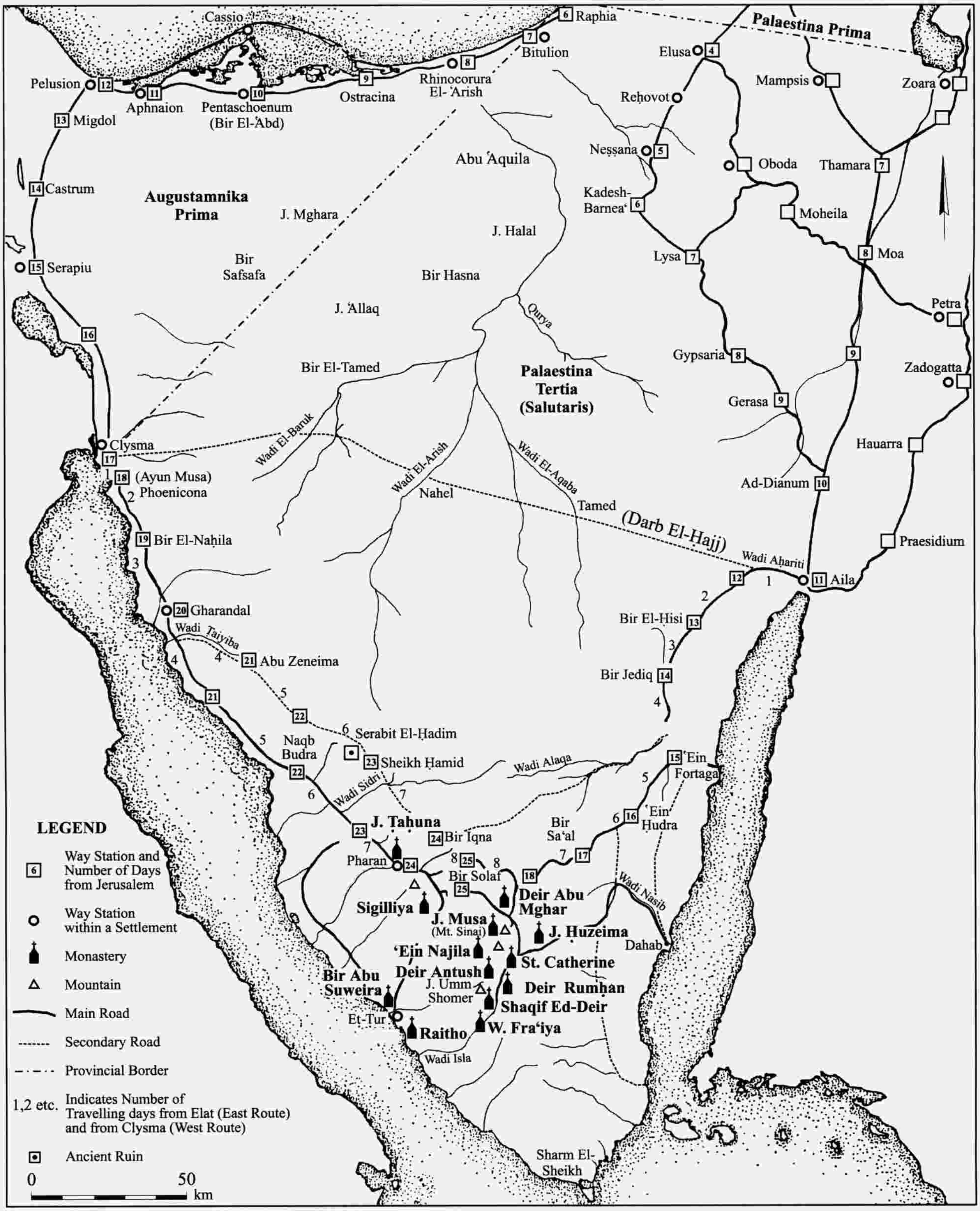
Along the entire route there are rock paintings and numerous inscriptions, especially in Nabatean, but also in Greek, Georgian and other languages (Mayerson 1982: 44–57). The largest and most impressive concentration of inscriptions was discovered in the Ḥajaj Valley, near ʿEin Ḥudra (see particularly Negev 1977; Stone 1982a: 27–31; Sharon 1993: 50–59).

The way stations were not always adjacent to the water sources, and the pilgrims usually camped several kilometers from the source; examples are ʿEin Atiya, where the station was *c.* 3 km from the water source, Hadabat Ḥajaj, which was *c.* 3 km from ʿEin Ḥudra, and Sheikh Faranja, where the campsite was one and a half kilometers from the water source. The reason for this was apparently the need to keep away from the Saracens, who controlled the water sources.

This road, being shorter than the western route, was preferred by large groups of pilgrims, especially the Armenian pilgrims who ascended Mt. Sinai following the Persian conquest (Stone 1982a: 27–31), as evidenced in the narrative of Anastasius the Monk (Nau 1902b: 60–89).

The Roads from Clysma to Mt. Sinai

Several roads led from Clysma to Mt. Sinai. Wilson and Palmer summarized the possibilities for a route from Ayun Musa to Jebel Musa (Mt. Sinai; Wilson and Palmer 1869 I: 156). However, they based these mainly on the alternatives which were open to the Children of Israel when they left Egypt, rather than on actual pilgrim routes of the Byzantine period.



Plan 2. Roads and way stations in the Byzantine period.

The Western Road (*Egeria's Road*)

Day 1: From Clysma to Ayun Musa, at map ref. 467305 UTM; the road was *c.* 7 miles long. At this spot was an abundant water source, identified by Egeria with the biblical Marah. This was a short day of walking, and thus most of the pilgrims continued southward, and camped near Wadi Laḥata, where there was no water. The road was *c.* 20 miles long.

Day 2: To the south along the coast of the Gulf of Suez to Ras Sudar, at map ref. 475276 UTM; at this point, the pilgrims loaded up with water, and continued to Bir El-Nahila, at map ref. 484254 UTM, where there was a water source. Near this source were many rock paintings. This road was *c.* 23 miles long.

Day 3: The route continued to the south along the coast, to the ascent up Wadi Gharandal to the area of the springs identified with biblical Elim, at map ref. 497237 UTM. This road was *c.* 19 miles long.

Day 4: From Gharandal to Bir Abu Zeneima at map ref. 510218 UTM. This road was *c.* 18 miles long.

Day 5: From Bir Abu Zeneima, at first along the coast, and then on to Bir Marḥa and Naqb Budra at map ref. 529202 UTM. This road was *c.* 23 miles long.

Day 6: From Naqb Budra via Wadi Mukattab to Bir El-Qaṭar in Wadi Feiran. The road was *c.* 19 miles long. Wadi Mukattab has the largest concentration of Nabatean and Greek inscriptions in Sinai; many of these inscriptions were published (*CIS* II).

Day 7: From Bir El-Qaṭar to Wadi Feiran and to the town of Pharan. The road was *c.* 15 miles long.

Day 8: From Pharan to Mt. Sinai, via Wadi Feiran, Wadi Solaf and Naqb El-Hawa. The road was *c.* 31 miles long; this was the longest day of walking, and could be divided into two days, with an overnight stay at Bir Solaf.

Summary: The length of this road was *c.* 170 miles, and the average distance between overnight stations was 21 miles. There were a considerable number of available water sources along most of the road, the exception being the first segment between Ayun Musa and Gharandal, where only few water sources existed and the road passed through very arid desert.

The Eastern 'Mines Road'

The first three days from Clysma to Gharandal were identical to the previous route.

Day 4: From Gharandal to Wadi Ṭaiyiba; water was filled up at Bir Thal halfway down the road, since Wadi Ṭaiyiba had no water sources. The road was *c.* 20 miles long. There were many rock paintings in Wadi Ṭaiyiba, near the overnight campsite, at map ref. 517223 UTM.

Day 5: From Wadi Ṭaiyiba to Bir-Naṣib, via Dabbat El-Grai. At midpoint, in Wadi Umm Sheḥa, on a rock at map ref. 52452224 UTM, a rock surface bears an incised depiction of a church, with a cross nearby, as well as an ibex, horses and camels. This might be a representation of the church at Mt. Sinai. At the overnight campsite at map ref. 539213 UTM, there is a large concentration of inscriptions, as well as inscribed crosses and many remains of copper slag strewn on the ground. The road was *c.* 21 miles long.

Day 6: From Bir Naṣib via the Serabit El-Ḥadim area to Wadi Esh-Sheikh, near Sheikh Ḥamid, at map ref. 556205 UTM. The road was *c.* 20 miles long. About 5 miles northwest of Sheikh Ḥamid, at map ref. 54712091 UTM, stands a Byzantine structure, 6 m long and *c.* 3 m wide; its entrance was in the center of its southern wall, and its eastern wall was rounded; only Byzantine pottery was found nearby. This apparently was a roadside chapel for pilgrims.

Day 7: From Sheikh Ḥamid via Wadi Biraq to Bir Iqna, at map ref. 571193 UTM. At the Bir Iqna oasis, the Bedouin excavated a pilgrim's grave. Among the grave goods was a complete clay ampula with two handles; both sides bear representations of St. Menas flanked by two camels (unpublished). The pilgrim carrying the ampula had been on his way to Mt. Sinai after visiting the pilgrimage site dedicated to St. Menas at Mareotis near Alexandria. The road was *c.* 16 miles long.

Day 8: From Bir Iqna via Wadi Labwa, Wadi El-Aḥdar, to Moyat Thar in Wadi Esh-Sheikh, at map ref. 581178 UTM. The road was *c.* 19 miles long.

Day 9: From Moyat Thar via Wadi Saḥab and Naqb El-Hawa to Mt. Sinai. The road was *c.* 20 miles long. An alternative was to ascend Wadi Esh-Sheikh to Ṭarfat El-Kadrin, the Watiya Pass and Mt. Sinai. This road was *c.* 26 miles long.

Summary: The length of this road, *c.* 175 miles, was not essentially different from the western road. In our opinion, this was a secondary pilgrimage route, since it did not pass through Pharan.

The Road from Raitho to Mt. Sinai

Raitho, on the coast of the Gulf of Ras Raʿiya, *c.* 10 km south of Eṭ-Ṭur on the coast of the Gulf of Suez (map ref. 565116 UTM), was accessible from Clysma along the coast, and from Egypt by way of the Gulf of

Suez; it could also be reached from Elat (Aila) via the Gulf of Elat and the Gulf of Suez.

One main road ran from Raitho to Mt. Sinai. It crossed El-Qaᶜ, along *c.* 14 miles of a waterless plain to the mouth of Wadi Isla. The road ascended the Wadi Isla canyon, which held many water sources, until the drainage of Wadi Muwajed to Isla, where a pair of large rocks known by the Bedouin as 'Ḥajar Er-Rahib' (Arabic 'Rock of the Monks'), would provide shade to the passersby. From this point, there were two alternatives: the easier and longer route continued up Wadi Isla, near Moyat Zalaqa, where there are remains of Byzantine structures which apparently served as overnight shelter. The length of the road up to these structures was *c.* 27 miles. The road then ascended up Wadi Isla to Deir Rumḥan, and from the latter, via Wadi Naṣib and Sabaᶜiya, to Mt. Sinai. The segment of road on this day was *c.* 22 miles, while the total length of the road was *c.* 49 miles.

The other, shorter route ascended Wadi Muwajed to El-Maᶜin or El-Khirbe, where there apparently had been an overnight station. On the following day, the road crossed the saddle between Jebel Rumḥan and Jebel Umm Shomer, and then descended to Deir Rumḥan. This part was shorter than the previous one by *c.* 4 miles, but was passable to camels only after being paved in the Wadi Muwajed ascent, at the watershed between Wadi Muwajed and Wadi Isla, and the Deir Rumḥan descent. It appears that the Wadi Muwajed route did not serve before the sixth century CE.

The pilgrims tended to divide this distance over three days of walking: the first day to Ḥajar Er-Rahib, the second day to Deir Rumḥan and the third day to Mt. Sinai.

Two secondary roads linked Raitho with Mt. Sinai. One crossed El-Qaᶜ, ascended Wadi Shidiq near Deir Antush, and from there via Wadi Naṣib and Wadi Sabaᶜiya to Mt. Sinai. The other route crossed El-Qaᶜ to Wadi Ḥebran, ascended the wadi to Wadi Solaf, and joined the main road from Pharan to Mt. Sinai. This road was the main road from Raitho to Pharan.

(Additional secondary roads, which were not of importance to pilgrims and monks, such as the route from Dahab up Wadi Naṣib to Mt. Sinai, appear in Plan 2, but are not discussed in this introduction. Remains of built and paved roads leading to monasteries will be discussed in relation to each monastery. Many prayer niches were found along the Sinai roads: Finkelstein 1981: 81–91.)

PHARAN – THE ADMINISTRATIVE CENTER OF SOUTH SINAI

The location of Pharan is incontrovertibly identified at Tell Maḥrad, at the western edge of the Wadi Feiran oasis (56211756 UTM, 630 m asl).

The historians Ptolemy in the second century (V, 17, 1) and Peter the Deacon (quoting Egeria) refer to Pharan as a village (κώμη), whereas it is a city (πόλις or *civitas*) for Eusebius (*Onomasticon* 142, 22–25), as well as for Theodosius (*CCSL* 175: 148; Wilkinson 1977:70), the Piacenza Pilgrim (Chapter 40) and Stephen of Byzantium (*Ethnika*: 658). The sources indicate that Pharan attained municipal status in the fourth century CE.

Numerous researchers have investigated the town (e.g. Neibuhr 1774: 198; Burckhardt 1824: 973, 974; Ruppel 1829: 263; Lepsius 1852: 342–345; Wilson and Palmer 1869: 210, 211; Palmer 1871: 154; Ebers 1881: 198–211; Lagrange 1896: 630–640; Carli, in Petrie and Currelly 1906: 245–255; Weill 1908: 106–194; Rothenberg 1970: 26). For a compilation of the historical data and a discussion of the sources relating to the development of the town, see particularly Burckhardt 1824: 973, 974; Robinson 1841 I: 126; Wilson and Palmer 1869: 197–201; Weill 1908: 218–226; Lagrange 1896: 630–638; Eckenstein 1921: 84, 88, 94–118; Devreesse 1940: 205–208, 211, 214–222; Dahari 1979: 13–28 (Hebrew); Shahid 1984: 303–304. Grossmann (1984–1985: 75–81; 1996: 11–36) excavated the site, but the excavations have not yet been completed. Following is an excerpt from the description provided by the Piacenza Pilgrim:

> ... A city is there, fortified on all sides with walls, but the place is completely barren, apart from some water and palm trees. There is a bishop in the city. The women with their children came to meet us, carrying palms in their hands, and flasks of radish oil, and they fell at our feet, anointed our soles and our heads, and sang this anthem in the Egyptian language, 'Blessed be ye of the Lord, and blessed be your coming. Hosanna in the highest'. That is the land of Midian, and the city's inhabitants are said to be the descendants of Jethro, the father-in-law of Moses. There are eight hundred [eighty in another manuscript] guards in the state service there, who have wives with them, and get their supplies and uniform from the treasury of Egypt. They cannot work on the land, since there is nowhere suitable, and everything is just sand. But each day they go out on patrol with their Saracen horses, which are sent straw for stabling and barley from the treasury,

> in order to guard the monasteries and hermits against Saracen raids. But they are not especially worried or afraid about them. Whenever they leave the city they lock the doors from the outside and take the keys with them. The people inside do the same, in case the Saracens attack, since there is nowhere for them to take refuge, apart from the sand and sky (Piacenza Pilgrim [v186] 40).

Pharan became holy to the Christians as the site of biblical Rephidim. The belief was that Moses stood on Jebel Ṭaḥuna, which overlooks the town from the other (northern) side of Wadi Feiran, and was aided by Aaron and Ḥur during the battle against the Amalekites (Ex 17: 8–13).

Pharan was built at the end of the first century–early second century, and declined by the mid-third century. It was rebuilt in the late fourth–early fifth centuries, reaching its peak between the fifth and the seventh centuries, to be totally abandoned by the early eighth century CE (Dahari 1988:29 [Hebrew]; Grossmann 1996: 28).

Structure

Pharan may be divided into an upper city (acropolis), covering an area of *c.* 3,150 sq m, with a monastery(?) and citadel(?), and a lower city, covering *c.* 32,000 sq m, located to the south of the latter (see Plan 40). A wall built of sun-dried bricks on a fieldstone foundation surrounded the entire city.

The upper city is built on Tell Maḥrad, which is a Pre-Cambrian metamorphic hill. This hill, which fully commands the entrance to the oasis and the road to Mt. Serbal, was the basis of the town's development. Aside from the monastery (see below, pp. 135–136), there was a citadel(?) on the summit of the hill, covering an area of *c.* 2,600 sq m, and surrounded by an additional wall. The corners of the wall have towers (Dahari 1979: 37 [Hebrew]). On the southeastern slope of the upper city Grossmann excavated a chapel with a crypt under the apse (Grossmann 1996: 16–18).

The thickness of the wall surrounding the lower city was *c.* 2 m. During the initial stage of the town's development, the wall encompassed an area of 23 dunams (6 acres); during the second stage, an additional wall was built in the southeast of the town, enclosing another 9 dunams (2.25 acres). The city wall had two gates near the juncture of the lower and upper cities. Square towers flanked both gates.

In the center of the lower city Grossmann excavated a basilical church (1984–1985: 5; excavated 1996: 11–39). This was a uni-apsidal church with a narthex and apparently an atrium as well. The walls of the church were built of mudbrick on a stone foundation (inner dimensions 16.3 × 9.2 m). The prayer niche faced northeast, azimuth 65°. Based on the staircase preserved in the southwestern corner of the narthex, it appears that the church had galleries. Most of the church had been plundered at the beginning of the century, and many of its architectural components are presently to be found in the new monastery adjoining Tell Maḥrad, known as 'Deir Zreir' (Arabic 'the Small Monastery'). These elements include lintels, capitals and column drums. One of the lintels bears a scene of Moses raising his two hands, while being supported by Aaron and Ḥur on both sides; Moses raising his hands in prayer is incised on two capitals as well. Other capitals bear incised or relief crosses, as well as floral motifs. While Grossmann (1984–1985: 5; 1996: 11–36; Grossmann et al. 1992: 7–20) maintains that the church of the upper city served as the seat of the bishop of Pharan, we assume that the upper city church belonged to the monastery and the lower city church was the cathedral. It is possible that this church was dedicated to Mary mother of God, since a Greek inscription with many abbreviations was found nearby, sloppily carved on a granite rock; it had apparently originated in the church; it reads: "Holy Jesus the Messiah and holy Mary mother of God, take pity on your servant Anastasius the sub-Deacon. The 9th of December, the fourth indiction" (Meimaris 1980: 228–232). This inscription is dated by Meimaris to the fifth century CE, by Grossmann to the mid-sixth century CE.

The houses in Pharan were built mostly of mudbrick. The town was very crowded, with closely packed houses built in disorder with no apparent plan. It seems that the site developed organically, rather than based on careful town planning. Unlike the Negev cities, the houses were not built around a central court; it appears that a small courtyard adjoined each house.

Cemeteries

The necropolis of Pharan is one of the most well-preserved and impressive remains of the town, and as such was intensively described by many visitors. The necropolis covered a large area, spreading like a ring around the city on both sides of Wadi Feiran, on the slopes of Jebel Ṭaḥuna, on Jebel Tamaʿa (east of Jebel Ṭaḥuna) and Jebel Maʿa (south and southwest of the town), as well as on the western spur of Jebel Muneijah.

There were two types of graves: dug pit graves, found only at the base of the conglomerate or clay hills on both banks of Wadi Feiran, and built graves – located on the slopes of the metamorphic mountains. Goren and Hershkovitz surveyed 1,166 graves (Hershkovitz 1988: 47–58). A survey conducted by the *Tzukei David* Field School counted more than 2,000 built graves and some 180 dug graves.

The built graves consist of double-faced walls of local fieldstones (especially schist), with no bonding material. Most of the grave structures included several adjoining and parallel burial cells, with more than one floor, each floor lying perpendicularly across the previous one. The average inner dimensions of each burial cell were 1.97 m long, 0.75 m wide and 0.52 m high; the average width of the walls was *c.* 0.50 m. Each burial cell was covered with flat stone slabs placed near each other, supported by the walls of the cell.

Since the measurements of each burial cell are so similar and close to the average, we may infer the identity of the deceased. The graves were built on the slopes with no apparent order or orientation. Palmer reports that the deceased were placed with their heads to the west and feet to the east (Wilson and Palmer 1869: 168, 169); Wilson mentions this as well (Wilson and Palmer 1869: 214). A similar situation where skeletons lay in one direction was found in the excavations at Reḥovot-in-the-Negev. There, the deceased were placed in dug burial cells with a general northwest–southeast orientation, the head to the northwest and the face turned to the east (Tsafrir and Holum 1988: 124–126). In the graves at Pharan, there were only few deviations from this dominant orientation.

The dug graves were both large, containing more than one burial, and small, with one skeleton only. It is possible that the larger graves did not serve only for burial during the Byzantine period, but were rather also used as dwellings or hermit-cells for monks, or as storage rooms, etc. On one of the lintels of a dug burial cave, the British survey team found a Greek inscription: εις θεος 'One God' (Wilson and Palmer 1869: 213).

The British survey team excavated some of the small dug graves (Wilson and Palmer 1869: 214; Palmer 1871: 168, 169). They found that the deceased were placed on their backs directly on the rock, with their hands on both sides of the body. The body was covered with a shroud made of coarse wool or palm fronds. Palmer mentions that remains of a wooden coffin were found in one of the graves.

Goren and Hershkovitz have excavated 87 built graves since 1978 (Hershkovitz 1988: 47–58). The excavations corroborated Wilson's conclusions that the burials were all primary and that each cell contained one individual. It was found that the deceased were of all ages (except for infants) and sexes. The deceased was laid on his back, with his hands placed on the hips.

Finds in the graves included earrings, bracelets, rings and beads. In two cases, knives were placed near the pelvis. Two skeletons had mother-of-pearl crosses, and one had a small stone altar on it. No remains of shrouds or wooden coffins were found.

Most of the graves were built and not hewn due to the hard metamorphic rock; it was easier and cheaper to build rather than to carve.

The Inhabitants of Pharan

The inhabitants of the town were mainly Pharanites, a Saracen tribe which lived in Sinai and converted to Christianity in the fourth century CE. The Pharanites resided in the Wadi Feiran oases, as well as in other extensive areas in South Sinai. Shahid proposes that the Pharanites were one of the tribes belonging to the Judham group of tribes, since the latter lived in the Land of Midian – the land of Jethro; according to the Piacenza Pilgrim, the Pharanites were the descendants of Jethro (Shahid 1984: 326). Arab genealogists tend to include the Judham tribes with the Amila tribe. Shahid suggests that the name Amila was related to the Amalekites, and that the Pharanites are the descendants of the Amalekites (Shahid 1984: 326). The tribe of Pharanites was already in Sinai and even in the Negev as early as the second century CE, as evinced by the personal name 'Pharan', which appears in many Nabatean rock inscriptions (Negev 1983: 239 [Hebrew]).

Pharanites may be found outside Sinai as well; a burial stele discovered in the atrium of the northern church at Shivta bore a Greek inscription with the name of the deceased – Sergius son of Benjamin the Pharanite (Negev 1981: 53, 54). This inscription is dated to 503 CE (Negev 1981: 54); since the northern church at Shivta was a monastery church, it stands to reason that the deceased was a Pharanite monk who had lived at Shivta.

The term 'Pharanite' does not necessarily pertain to a resident of that town, but first and foremost it refers to tribal affiliation. Stephen of Byzantium writes that the town was located between Egypt and Arabia, and that its inhabitants were called Pharanites, as they belonged to the people of the Pharanite Mountain (*Ethnika*: 658). Egeria differentiates between the village

Pharan and the desert Pharan (Chap. 6), and describes the Pharanite camel riders who accompanied her on her way from Pharan to Egypt. The 'camel riders' were not necessarily residents of the town; it is more likely that they were tent-dwelling nomads who lived in the oases near the town, or in the surrounding desert. Stories from the *Apopthegmata Patrum* and the *Limonarion* indicate that the meaning of the name Pharanite was primarily a tribal affiliation, since it is mentioned that there were Pharanites who were hunters in Egypt (*Alphabeticon Sisuas* 7: *PG* 65: 391–408), and who dwelled in tents (*Alphabeticon Nicon* and *Limonarion: ROC* 10: 45, 46 *Clugnet addendum*), as well as fishermen in the Red Sea (*Limonarion* 120: *PG* 65: 2984).

Examination of the skeletons excavated in the cemeteries around the town led to the unequivocal conclusion that the population was local, homogeneous and similar to the present-day Bedouin population (Hershkovitz 1988: 47–58).

It is difficult to estimate the population of the town, since the historical sources do not mention this subject. Based on the accepted coefficient employed by many scholars of 40 to 50 persons per dunam after subtracting public areas (Broshi 1979: 1–10), it appears that some 1,500–1,600 people lived in Pharan.

The Military Unit

The Piacenza Pilgrim is the only historical source to mention the military unit stationed in the town (see above). It may be surmised that the base of this unit was located in the upper city, adjoining the monastery. Wilkinson, in his translation based on the version in *CSEL* 39, writes that there were 800 soldiers in this unit. Manuscript *Sengollensis* Cod. 133 asserts that there were only 80 soldiers. We maintain that the figure '80' is reasonable, in light of the size of the town. The soldiers rode horses and not camels, since horses are swifter and could reach their destination more rapidly. On the other hand, the horse did not have the stamina of the camel in withstanding desert conditions; this impeded their ability to travel long distances along the desert roads. Though Pharan belonged to Palæstina Tertia (see below), the soldiers received their pay from nearby Egypt.

We have no data on when the soldiers were stationed at Pharan, or by whom. However, it appears that in the beginning of the fifth century CE there still was no regular unit in the town, since Egeria, Nilus and Ammonius do not describe any such unit, and Ammonius stresses that Pharanites, under the command of Obedianus, were sent to fight the Blemmyes (see below). We assume that the unit was stationed at Pharan sometime between the reign of Theodosius II and Justinian; stationing of such a unit in the town is indicative of the distrust of the authorities toward the Pharanite Saracens, wishing to limit some of the powers the latter exercised in the desert. The skepticism demonstrated by the authorities against the Saracens brought about a feeling of betrayal and insult, as well as being detrimental to their economy. This in turn encouraged them to stray from the monks and Christianity immediately upon the Arab conquest (Appendix to Anastasius [Nau 1902a: 87–89]).

The Economy

The economy of Pharan, situated in the largest oasis in Sinai, was based on its being the administrative, religious and economic center of South Sinai, as well as serving as an important station on the main caravan route from North Sinai and from Egypt to Mt. Sinai. We assume that the termination of the Nabatean kingdom, as well as the establishment of Provincia Arabia, accelerated the growth of the town, since in order to bypass the taxes imposed by the Romans in the Mediterranean ports on Nabatean goods, a part of the latter were transported through secondary routes such as Wadi Feiran. In the fourth century CE, though the amount of goods decreased, the number of pilgrims to Mt. Sinai increased, and constituted economic compensation for the loss of trade.

Between the fourth and the beginning of the seventh centuries, the town's economy was based on pilgrims, since Pharan was the only station in South Sinai to offer more than minimal services. Most of the pilgrims remained in the town two days, in order to rest and pray at Jebel Ṭaḥuna. Egeria relates "... and when we arrived there (at Pharan), we needed two days' rest" (Egeria 6, Chap. 1 [Wilkinson 1971: 100]). We infer that the identification of Jebel Ṭaḥuna with Rephidim was the result of pure economic interests, inducing pilgrims to stay another day in the town. Guarding and accompanying caravans was another part of the town's economy.

As mentioned above, it may be assumed that the stationing of the military unit was one of the factors behind the demise of the town. The town was abandoned in the seventh century, and the main pilgrim route from Egypt to Mt. Sinai passed through Raitho and Wadi Isla, instead of via Wadi Feiran. Shortly after the Arab

conquest, the town was destroyed and its populace converted to Islam. (For a full discussion of the town's economy, see Dahari 1979: 47–50 [Hebrew].)

The Bishops

There is no comprehensive list of Pharan's bishops, and the data we have are limited and fragmentary. Following is a discussion on the bishops mentioned in historical sources:

Moses: Moses of Pharan was a monk at Raitho who converted the Pharanite tribe to Christianity after Ammonius burned their leader Obedianus (Combefis 1660: 98–100).

When the Saracens rebelled during the reign of the emperor Valens (364–367 CE), their leader, Mauia, declared that the situation would return to normal only on condition that Moses would be appointed bishop of the Saracens. Valens was forced to agree, though Moses was a Nicean by belief, while Valens was a supporter of the Arian dogma (Sozomen *HE* VI, 38: *PG* 67: 1408–1413; Socrates *HE* IV, 36: *PG* 67: 557; Theodoret *HE* IV, 20: *PG* 82: 1181; Rufinus *HE* II, 6: *PL* 21: 514, 515). This subject has been widely discussed (Delehaye 1902: 239–154; Vasiliev 1956: 307; Mayerson 1980a: 123–131; Rubin 1982: 241–245 [Hebrew]; Shahid 1984: 142–145). Many scholars seek to relate the Moses mentioned by Ammonius with the figure described by the four church historians (Mayerson 1980: 133–148). Though the chronological framework is suitable, there is no certainty as to the location of Moses the Saracen's activity. Rubin maintains that Moses was a hermit in Sinai (Rubin 1982: 243 [Hebrew]). Shahid claims that he should be sought in the Syrian, Jordanian or Negev deserts (Shahid 1984: 142–145). The fact that not one of the four church historians mentions Pharan in relation to Moses makes it difficult to correlate Moses as described by Ammonius with Moses the bishop.

Netra: The *Alphabeticon* (*PG* 65: 511, 512) tells us of the monk Netra (Νατηρα or Νετρα), who was Silvanus' disciple and later became the bishop of Pharan. Netra lived a life of severe asceticism even when he became bishop at the end of the fourth or beginning of the fifth century CE. The name Netra is unclear, and appears in various versions. Shahid claims that Netra was of Arab descent and the origin of his name was Nasr, Nasir, Nadr, Nadir or Nad'ir (Shahid 1984: 303). However, it appears that the origin of this name was Natira, which was an Arab or Aramean name derived from the root *ntr* 'to guard' (Negev 1991: 43, 135).

Agapitus: In the *Basil Menologium* (*PG* 117: 19–614), on February 18, there is mention of St. Agapitus, who was born in Cappadocia during the reign of Diocletian and was drafted into the army by Licinius. He then converted to Christianity and was qualified as a clergyman by the bishop of Sinai. When the latter passed away, Agapitus assumed this position (Le Quien 1740: 750). As this late tenth-century source provides the only account of this occurrence, we assume it is unreliable.

Macarius: Before the convening of the Synod in Jerusalem in 454 CE, Emperor Marcian wrote to Juvenalis that he had despatched a letter to Macarius the bishop, to the archimandrit and to the monks of Sinai, warning them of the heresies of Theodosius (Perrone 1980: 79–103). Since at that time the only bishop in South Sinai was to be found at Pharan, we assume that Macarius served in this position during this period (Le Quien 1740: 750).

Potius: He was mentioned only in the *Limonarion* (see below). Peter, the patriarch of Jerusalem, wrote to Potius, the bishop of Pharan (apparently in 552 CE, according to Cyril of Scythopolis' *Life of Sabas*); the letter pertained to the monk Georgius of Mt. Sinai. Based on this letter, it may be surmised that the abbot of Mt. Sinai was subordinate to the bishop of Pharan, while the latter was subordinate to that of Jerusalem.

Theodore: Theodore, the bishop of Pharan, participated in the Church Synod at Lateran in 649 CE, as well as in the Constantinople Conference in 680 CE (Le Quien 1740: 754), where he was condemned as a monophysite (Elert 1951: 67–76), though he was a monothelite (Solzbacher 1989: 287).

Subordination to Palestine

The bishop of Pharan was apparently subordinate to the patriarch of Jerusalem (following the Chalcedon Conference), as part of Palæstina Tertia, though geographically and economically Pharan was closer to Egypt. Following is the evidence:

A. At the Fourth Constantinople Synod, in 536 CE, Pharan appears on the list of Palestinian bishoprics. The decisions of the Synod were then signed by the

presbyter Theonas, who was twice appointed in the name of the holy saints of Sinai, the hermits from Raitho and the holy community at Pharan (*ACO* III 1940: 37, 51, 130, 139, 146, 158, 165, 174; Le Quien 1740: 750).

B. In Nau's opinion, the *Notitia Antiochena* was a later development of the list of Georgius Cyprius, dating to the sixth century CE (Nau 1909: 218). Honigmann maintains that it originated in 570 CE, during the term of Anastasius I as patriarch, and was subsequently re-edited in the eleventh century CE (Honigmann 1925: 60). In the *Notitia*, the bishopric of Pharan appears in the twenty-third place, while Mt. Sinai is in the twenty-fourth place, in the list of autocephalous towns related to the Jerusalem patriarch. Among other sites, the *Notitia* also mentions Mt. Tabor and Nazareth as Episcopal towns. The latter casts doubt on the authenticity of the list, since it is difficult to determine which parts were earlier and which date to the Middle Ages. However, since Pharan was not an Episcopal town at the time the *Notitia* was written (as opposed to Nazareth and Mt. Tabor which were Episcopal in the Middle Ages, but not in the sixth century CE), it appears that the segment relating to Sinai is indeed original.

C. In the *Notitia* related to Nilus Docsepatreus from 1143 CE, there is a list of bishops subordinate to the Jerusalem patriarch (Parthey 1866: 266–308). The twenty-third bishop on the list was from Pharan, and the twenty-fourth was from Mt. Sinai. The *Notitia* was apparently based on the *Notitia Antiochena* (Le Quien 1740: 750).

D. The most solid and convincing evidence of the subservience of Pharan and South Sinai to Palestine comes from a letter of Emperor Marcian to Juvenal, Patriarch of Jerusalem, with a copy to the bishop of Pharan, as well as a letter from Petros, the patriarch of Jerusalem to the bishop of Pharan (see above).

E. In the *Novella* of Emperor Justinian, dated to 553 CE, there is a list of towns transferred from Antioch and Alexandria to the Jerusalem patriarch. Pharan is among the towns taken from Alexandria (Gelzer 1893: 22–72). Though it appears that the *Novella* provides direct evidence for the control of Pharan by Jerusalem, this must be treated with caution. In Gelzer's opinion, this *Novella*, which does not appear in any other source, is counterfeit, since it is not possible that cities such as Gaza, Ashkelon, Eleutheropolis, Elat, Mt. Sinai and Pharan were transferred to the Jerusalem patriarch as late as the reign of Justinian. Gelzer assumes that at this late date, civilian town lists that appeared in the writings of Georgius Cyprius were transferred to church lists, thus creating a confusion between civilian and religious sectors, which do not necessarily match (Gelzer 1901: 280).

Summary

A. The village of Pharan became a city in the fourth century CE.

B. From the mid-fourth century until the Arab conquest, the residents were Christians, and the town was the seat of a bishop who was subordinate to the Metropolitan of Palæstina Tertia, and eventually, to the Jerusalem patriarch.

C. The majority of the town's residents were Pharanites, whose origin was the Arab Saracens.

D. The main crop of the Wadi Feiran oases – as today – was the palm tree.

E. The town was identified with biblical Rephidim.

F. Pharan was an important station on the main road from North Sinai and Egypt to Mt. Sinai.

G. A military unit was permanently stationed in the town.

H. In the sixth century CE, a wall defended the town.

I. Several of the town's residents were monks.

J. Pharan was the most important administrative, religious, economic and military center in South Sinai, until the construction of the fortified monastery by Justinian. The establishment of the Sinai Monastery, and the authority granted to its bishop, which equalled that of the Pharan bishop (*PG* 86: 1149–1152), ended the dependency of Sinai monks on the town of Pharan. Moreover, the stationing of a permanent military unit in Pharan damaged the position of the Pharanites as defenders of the monks. These two factors brought about a decline in the town's status and harmed the economy and self-esteem of the residents. This culminated in a rapid conversion to Islam immediately after the Arab conquest, as well as the eventual destruction and abandonment of the town.

K. Four different population groups struck a harmonious balance in Pharan during the Byzantine period: urban, agricultural (at the Feiran oasis), nomadic and monastic. In addition, pilgrims, merchants and soldiers played a role in this diversified town. The transfer of part of the municipal roles and authority to the Sinai Monastery, and the subsequent Arab conquest, destroyed the delicate balance between the four groups and resulted in a chain reaction which rapidly destroyed three of these social groups at Pharan. Ultimately, it was the nomadic group which survived – the eternal possessors of Sinai.

CHAPTER 1

SINAITIC MONASTICISM AS REFLECTED IN HISTORICAL SOURCES

THE BEGINNINGS OF SINAI MONASTICISM

The beginnings of monasticism in Sinai are not well documented in the historical sources. Three sources provide information about the period preceding the mid-fourth century CE:

1. Simeon Metaphrastes relates the lives of Epistem and Galaktion, detailing how they became monks and their arrival in Sinai during the reign of the Roman emperor Decius (*PG* 116: 93–108). This source, dating to the tenth century, describes events which took place in the third century CE, relying on earlier sources. It is possible that Simeon Metaphrastes mixed different sources, as there are a few contradictions in his story.
2. Dionisius of Alexandria wrote that many Christians fled to the mountains of Arabia in fear of the pursuit of Emperor Decius. They were caught and sold into slavery to the Saracen barbarians. Eusebius of Caesarea quotes this story in the *Ecclesiastical History.*
3. *The Synaxarium Ecclesiae Constantinopolitanæ*. states that Helen, mother of the emperor Constantine, financed a watch-tower for the monks of Sinai on the fourteenth of January, known as the day of the Saints of Sinai. This source is late, and possibly refers to a different Helen, described in other sources.

A few historical sources deal with the second part of the fourth century CE:

Julian Saba is the first monk on whose activities in Sinai we have solid information. He came from Syria to Sinai on a pilgrimage *c.* 363 CE, and during his visit built a chapel on the summit of Mt. Sinai. This is the earliest historical source identifying Jebel Musa as Mt. Sinai (*PG* 82: 1315). Theodoret writes about Julian Saba in the *Religiosa and Philothea Historia.* Ephrem the Syrian also mentions Saba in three hymns, praising one of the Syrian church fathers (*CSCO* 323: 61–62, 71–76).

Egeria's pilgrimage to Sinai probably took place in 384 CE. She describes holy sites near Mt. Sinai and in Pharan, indicating that there had been a comprehensive, well-organized system of laura monasteries. From Egeria and Julian Saba, it is clear that in the mid-fourth century CE monks lived as hermits in communes in Sinai. This has been substantiated by archaeological finds.

SINAI MONASTICISM FROM THE END OF THE FOURTH CENTURY CE TO THE MID-FIFTH CENTURY CE

There is an abundance of historical sources describing Sinai monasticism in this period. The descriptions of the activities of Julian Saba and the pilgrimage of Simeon the Elder reveal that Sinai monasticism originated with Syrian ascetics. The pilgrimage of Egeria is a rich and reliable historical source of this period.

Many stories involving the monks near Mt. Sinai and in Pharan are collected in the *Apophthegmata Patrum*. These stories indicate that there was no connection between the monasteries and the holy sites. On the contrary, the pilgrimage movement disturbed the seclusion of the monks, consequently causing them to build their monasteries in remote valleys, far from the pilgrim routes. From the *Apophthegmata Patrum* we learn that Sinai monks were mainly occupied with agriculture, growing their own fruit and vegetables. The land was sufficient to provide for the basic needs of the monks, and it was forbidden to enlarge the orchards beyond the necessary minimum. The 'Monastic Ultimate' models were Moses, the first prophet, and Elijah the Prophet. Therefore, the anecdotes of the *Apophthegmata* that relate to Sinai deal with exemplary characters such as Silvanus, Netra and others, who imitated the lifestyle of these prophets. The combination of religious studies and manual labor is well respected, and both are of equal importance. The *Apophthegmata* tales related to

Sinai are found mainly in the *Alphabeticon*, and in collections of the Armenian *Apophthegmata*. From these narrations, it is understood that Raitho monasticism was closely connected to Egypt, while the Mt. Sinai monasticism was quite independent and had only tentative connections with both Palestine and Egypt.

Nilus of Sinai: The seven *Narrations* related to Nilus describe the situation in Sinai toward the end of the fourth century CE, or at the beginning of the fifth century CE (*PG* 79: 589–694). Many details concerning the lifestyle of Sinai monks can be learned from these stories: They preferred very small communities of hermits living in cells that were distant from each other. Their economy was based upon their small orchards. They were widely scattered throughout South Sinai and maintained a relationship with the Saracens. Nilus mentions the names of five monasteries – Getrabbi, Shalal, Elim, Tolas and Aze (Βησώραμβῆ, Σαλαθη, Αιλίμ, Θθλά, ʿΑζε) – where the monks were slain by the barbarian Saracens.

Ammonius: Ammonius the Monk recounts the massacre of 40 monks at Raitho by the Blemmyes and the Saracens, and another massacre of 40 monks in Mt. Sinai by the Saracens (Combefis 1660: 86–132; Lewis 1912). This story is probably contemporary with the account by Nilus. Ammonius reports on the conversion to Christianity of the Pharanite tribe by an ascetic monk named Moses, living at Raitho. Moses cured Obedianus, the leader of the Pharanites, of his sickness and consequently became an exemplary man. Possibly this is the Moses mentioned by Sozomen, Socrates, Theodoret and Rufinus, when they described the raids of 'Mauia', the queen of the Saracens, during the reign of the arian emperor Valens. After the Blemmyes' massacre, the Pharanite warriors, headed by Obedianus, arrived and overcame the Blemmyes in a bloody battle.

Ammonius mentions the monasteries of Raitho, where the monks lived in a number of monastic centers at a distance from each other. He briefly describes the Mt. Sinai monks' exemplary way of life: They remained in silence in their cells and convened for prayer and liturgy only on Sundays.

Ammonius names three places near Mt. Sinai where monks were slaughtered by the Saracens: Getrabbi, Horeb (or Chobar) and Koder (Γεθραββὶ, Χωρὴβ, Κοδάρ).

The murder of the monks, mentioned by Nilus and Ammonius, is alluded to in one of the stories of the *Spiritual Meadow*, by John Moschus. We believe that these massacres were committed toward the end of the fourth century CE, as a show of strength intended to demonstrate to the monks what the appropriate relationship between the two communities should be, concerning the profits to be reaped from the pilgrims. The monks intentionally hid these act of slaughter, so that monasticism and the pilgrims would not be affected, as well as to maintain the relationship with the Saracen Philarcus. The actions became public knowledge only after the Arab conquest, with the purpose of creating a Sinaitic martyrology.

Onophrius: The climax of ascetism is symbolized in the story of Onophrius the Monk, who lived secluded for many years in Sinai, with neither clothes nor property. The story of Onophrius is mentioned by Paphanotius in *Vita Onophri* (*PL* 73: 211–222) and by Sulpicius Severus (without mentioning the name [*Dialogi* I, 17]).

Sinai Monasticism from the Mid-Fifth to the Mid-Seventh Century CE

The Letter of Marcian and Monophysitism in Sinai: Theodosius, who was nominated Patriarch of Jerusalem by the monophysite monks after the dismissal of Juvenal (Perrone 1980: 79–103), fled to Sinai after the renomination of Juvenal in 453 CE. In a letter to Bishop Macarius of Pharan and to the Sinai monks, the emperor Marcian demanded the extradition of Theodosius and warned them against the heresies he was spreading (Le Quien 1740: 750; Coleman-Norton 1966: 830–834; *ACO* II: 491). From this letter, it is obvious that there were monophysite monks in Sinai. Their presence was revealed by John Rufus (*Plerophoria* XXX) when recounting the story of Zosimus the monk, who lived at Raitho and later moved to the monastery of Peter the Iberian near Gaza Maiuma in Palestine. We also hear of these monks from Jacob Varadaeus, Bishop of Edessa, the founder of the Syrian Monophysite community (Chadwick 1967: 210; Perrone 1980: 188–189).

The monothelithic actions of Theodore of Pharan suggest that there were some monks in Sinai who did not concur with the majority decisions of the Council of Chalcedon (Elert 1951: 67–76).

Cosmos Indicopluestes: Cosmas (Book V, 169–199) identifies Raitho with biblical Elim, and Pharan with biblical Rephidim, and also mentions that Mt. Sinai is six miles away from Pharan.

Procopius of Caesarea: In *History of Wars* I, 19, Procopius describes Sinai and the relations between the emperor Justinian and Abuchorbos, king of the Saracens. In *Buildings* V, he writes that Sinai was previously in "Arabia", and in his day, belonged to the "Third Palestine". He describes Sinai monks and the church dedicated to Mary the Mother of God that Emperor Justinian built for them on Mt. Sinai, as well as a fortress he constructed in the valley below.

A Bull of the Emperor Justinian: In this bull, probably from the year 551 CE, Justinian appointed the abbot of Mt. Sinai, a status parallel to that of a bishop (*PG* 86: 1149–1152).

The Piacenza Pilgrim: The visit of the Piacenza Pilgrim to Sinai did not postdate 570 CE; we believe his visit was earlier, between 555 and 563 CE. He reached Sinai via the Negev, through Darb El-Gaza and eastern Sinai, arriving at Mt. Sinai. From there he continued to Pharan, Gharandal and Suez. His descriptions are important for the study of holy sites in the sixth century CE, and contribute to our understanding of the layout of the town of Pharan, as well as enhancing our knowledge of the Saracens. The Justinian church on the peak of Mt. Sinai had not yet been built, but he relates a common practice of shaving one's hair on the summit and drinking the manna.

John Bishop of Nikiu: John writes of fortresses that were built by the emperor Anastasius in Raitho and other places, in order to protect the monks from the Saracens following the barbarian slaughter of the Raitho monks (*PG* 89: 33, 34). It is our opinion that due to the strong resemblance between the Raitho fortress and the Sinai Monastery, John attributed the Justinian construction in Sinai to Anastasius. This can be explained by the fact that the Monophysites were more supportive of Anastasius than of Justinian, who was a Chalcedonian. John refers to the Mt. Sinai monks several more times in his chronicle; as a Monophysite, his lack of sympathy for the Mt. Sinai Chalcedonian monks is obvious.

John Moschus: In the *Spiritual Meadow* (*Pratum Spirituale, Limonarion*), there is a collection of stories mainly about the monks of the Judean Desert, as well as about Sinai and Syrian monks. These tales were collated during John's wandering between the monasteries in the East toward the end of the sixth century CE and the beginning of the seventh century CE. His descriptions indicate that there were many monasteries on and near Mt. Sinai. At Raitho, there was a laura with some hermits. In Pharan there was a bishop, and the settlers lived in tents.

Pilgrimage to Mt. Sinai was a common practice among the monks, and many of them dreamed of living in Sinai. John Moschus wrote about Sinai monks who came from Rome, Byzantium, Cilicia, Mesina, Pelusion and Pharan. John's final wish was to be buried in Sinai, where he found the 'Monastic Ultimate'.

Pope Gregory I (the Great): Three letters of Gregory refer to Sinai. They relate his great love of Sinai and admiration of Sinai monks (*PL* 77: IV 46; XI 1–2). In a letter to John, the Father of the Sinai Monastery, he tells him of the donation of 'necessary needs' for the Gerontikon of Mt. Sinai.

John Climacus: John was born *c.* 579 CE, and died *c.* 649 CE (or earlier). He arrived in Sinai at the age of sixteen, and was a student of Martyrius. Following his mentor's death, he retired to become a hermit in Tolas for 40 years. He died at the age of eighty, having served as Abbot of the Sinai Monastery for four years, where he was buried (*PG* 88: 596–608).

John prepared a guidebook for Orthodox monks, *The Ladder of Divine Ascent*, which was the most popular book (after the canonic religious book) in the Eastern monastic movement. The book details 30 spiritual steps the monk had to ascend, without skipping, in order to reach God's Love – the final rung of the ladder.

The book includes many accounts of Sinai monks. From them we learn that a monk should have a teacher and practice obedience and self-denial as the basis of monasticism; the book also details the 'do's and don'ts' of monastic life. There was not a great deal of mysticism in the life of a monk.

John mentions three sites in Sinai other than Mt. Sinai and Raitho: Tolas, the Gouda Desert and Side.

Anastasius the Monk: Anastasius was a simple monk who lived in Sinai during the first half of the seventh century CE. He lived through the Arab conquest, the Pharanite conversion to Islam, and the damage caused to Mt. Sinai by the Moslems. This is the most important historical source on the monks in Sinai, their monasteries and their orchards.

Nau (1902a: 1–70; 1902b: 58–89) published Anastasius' writings. The sites in Sinai that are mentioned are

Metmor, Belim, Turban, Sideh, the Stream of Sideh, the Gouda Desert, Arselaus, Maloucha, Gharandal and the Highest Desert.

The following is the information concerning Sinai monks to be gleaned from Anastasius:

A. There were two methods of burial common among Sinai monks: (1) burial in a mass grave, as was practiced in the Sinai Monastery, on Mt. Sinai and in the large monasteries; (2) burial in a hermit's cell or in a nearby cave.

B. The relationship between the monks and the Saracens was usually good. The monks helped the Saracens find food in troubled times, and in exchange, the Saracens served as messengers and guides for the new monks.

C. New monks arriving in Sinai spent a few years in the Sinai Monastery prior to their acceptance into hermit monasteries.

D. It was common among the ascetic monks not to speak until the fourth hour of the day (in accordance with the Byzantine clock).

E. In the 40 days preceding Easter, it was common to wander in the desert.

F. Fruits and vegetables of various species were grown in the monks' orchards.

G. Ascetic monks' clothing was made from compressed palm fiber.

H. Pilgrimage to Mt. Sinai in large groups was common among the Armenians.

I. The countries of origin of Sinai monks were Armenia, Constantinople, Iberia, Rome, Cyprus, Isauria and Mesena. Some of the monks were of Saracen origin.

J. Pharan lost its importance to Sinai monasticism during the seventh century CE. Contemporaneously, Aila became more important, and there were very close connections between the bishop of Aila and the Sinai monks.

Chapter 2

The Monastic Center around Mount Sinai

The monastic center which sprang up around Mt. Sinai was the largest, most central and most important in South Sinai. All the monastic settlements in this region were built on the lofty granite massif of South Sinai.

Monastic Settlements of Mt. Sinai and Mt. Horeb

Geological, Morphological and Climatic Background

Jebel Musa (Mt. Sinai; Fig. 2) and Jebel Sufsafa (Mt. Horeb; Fig. 3) constitute a single geographical unit, separated from its surroundings by valleys on all four sides. To its north and east is Wadi Ed-Deir, which divides it from the Jebel Ed-Deir range. To the southwest are the Shreij and El-Arbaʿin (El-Leja) Valleys, which separate it from the high massif of Jebel Catherine and Jebel Aḥmar. To the southeast is Wadi Sabaʿiya, which runs along a large geographical fault. To the northwest of the Musa–Sufsafa Massif are the Er-Rabba and Er-Raḥa Plains (Plan 3; foldout map). The length of the massif is *c.* 3.3 km from southeast to northwest; its width is *c.* 1.7 km from northeast to southwest. It covers an area of some 5.6 sq km.

Geologically, Jebel Musa is a volcanic neck composed of volcanic material, while plutonic Jebel Sufsafa is mainly composed of young granite of the Iqna Catherine type, found in many outcrops.

Jebel Musa, on the southeast side of the massif, is the highest mountain; its single peak is 2,273 m asl, towering some 200 m above the peaks of Jebel Sufsafa and 300 m above the surrounding valleys. The mountain has steep, vertical slopes.

Jebel Sufsafa is a mountain complex composed of 25 peaks reaching a height of over 2,000 m, between which lie a similar number of valleys. The peaks and slopes are composed of exposed red granite, which forms extensive horizontal, sloping or vertical rock surfaces, characterized by outcrops and hemispherical caps. The flat, horizontal mountainous valleys between the peaks (Arabic *farsh*) are overlaid with a layer of arcosic soil deposits. Two minor fault lines lent the mountain its shape: one runs north–south, the other, southeast–northwest. The main wadis and ravines draining the mountain are located at the juncture between these and smaller, parallel fault lines (Fig. 3).

The average annual precipitation on the mountain is 65 mm (Kaphra and Barkay n.d.: 30 [Hebrew]). Some of the precipitation is in the form of snow, which remains for a long time on the peaks and in shady areas.

Due to the morphological structure of the mountain, most of the precipitation flows as runoff into the mountainous valleys, where the water is absorbed into the arcosic soil, seeping down as ground water, as well as being collected in the rock scarps.

The local climate is mild in the summer and harsh in the winter; the average temperature during the month of January is a mere 1° C (Yaffe 1987: 334 [Hebrew]), though on winter nights the temperature frequently falls below zero.

Favorable factors, such as the morphological configuration, available water in the valleys, the fertile alluvial valleys with a climate conducive for cultivation of desert orchards, coupled with the holy traditions associated with the Sinai and Horeb mountains, led to the development of the most substantial, intense and central monastic community in South Sinai.

Sacred Traditions

Christian belief related two major holy traditions to Mt. Sinai and Mt. Horeb: the giving of the Covenant on Mt. Sinai (Ex 19: 34) and the prophet Elijah's refuge on Mt. Horeb (I Kgs 19: 9). As a result, Mt. Sinai



Fig. 2. Jebel Musa (Mt. Sinai).

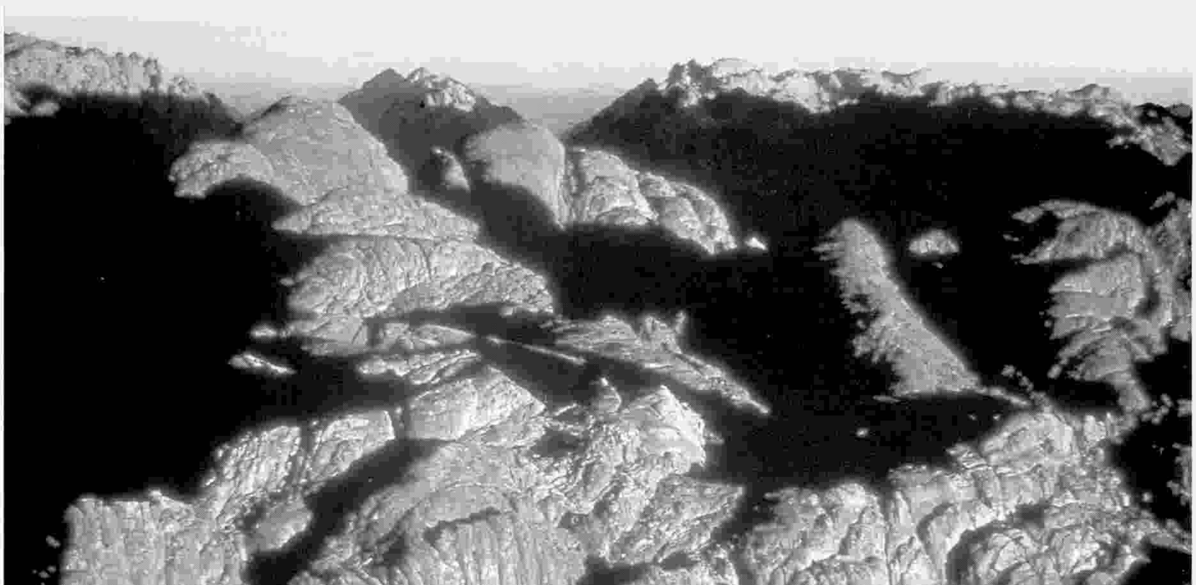
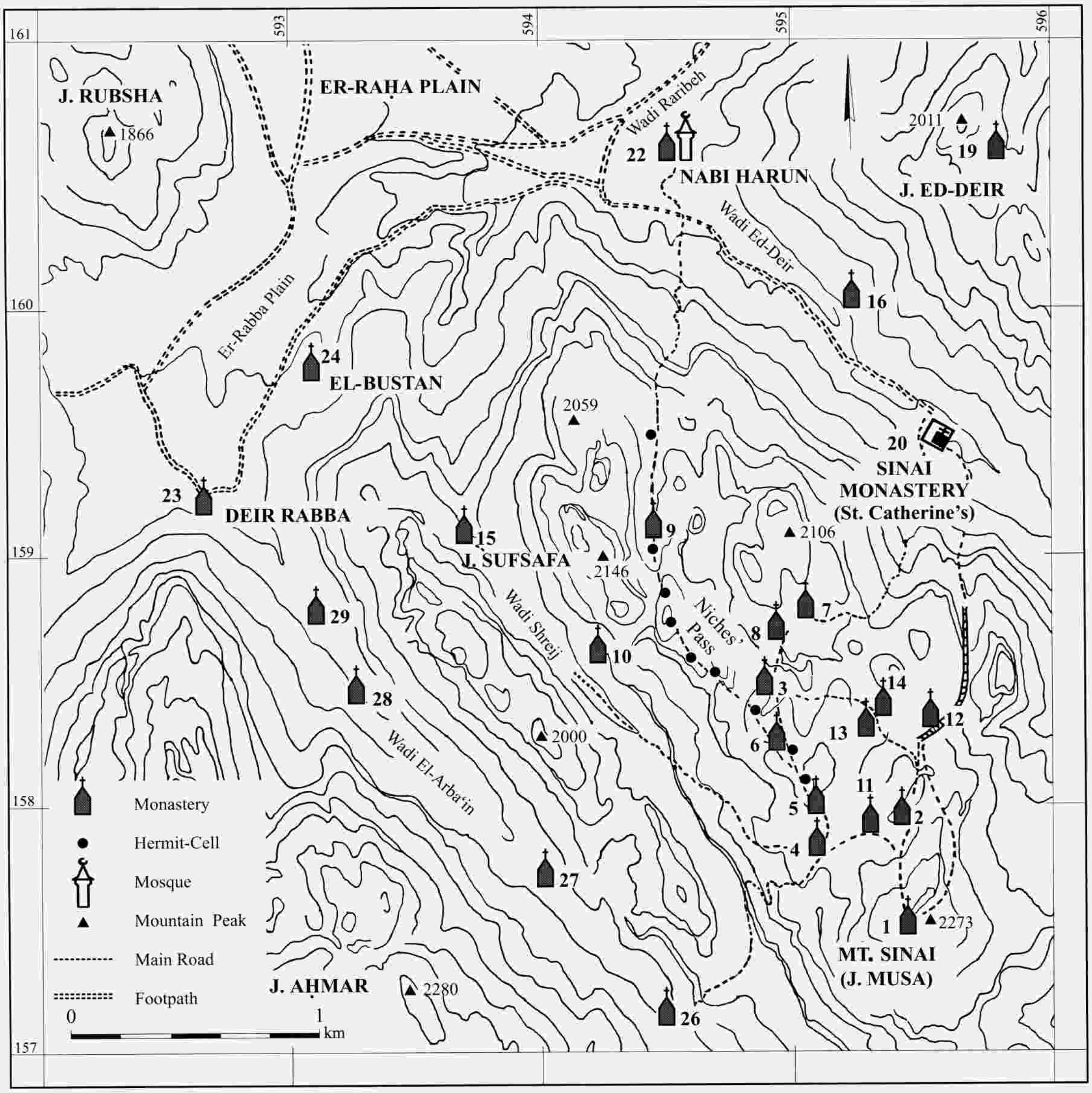


Fig. 3. Jebel Sufsafa (Mt. Horeb).



1 J. Musa (Mt. Sinai)
2 St. Elijah's Valley
3 Complex 210
4 Complex 220
5 Complex 230
6 Complex 240
7 Complex 50
8 Complex 70
9 Complex 100
10 Complex 320
11 Complex 290
12 Complex 12
13 Complex 18
14 Complex Site 83
15 Wadi Shreij
16 J. Ed-Deir, West
19 J. Ed-Deir Monastery
20 Sinai Monastery
22 Nabi Harun
23 Deir Rabba
24 El-Bustan
26 Deir El-Arba'in
27 St. Onophrius' Cave
28 Moses' Rock
29 Wadi Abu Heiman

Plan 3. Monasteries in the environs of Mt. Sinai.

became the most holy Christian site in Sinai, attracting droves of monks and pilgrims who came to worship in these surroundings.

Site 1: Jebel Musa (Mount Sinai)
5954515745 UTM 2,273 m asl

History of the Site

It is difficult to determine precisely when in the fourth century CE the Christian monks began to identify Jebel Musa with Mt. Sinai and to establish monastic settlements there. Historical sources indicate that Syrian and Egyptian monks were the first to arrive in this remote region and initiate monastic activity, motivated by the concept of monastic asceticism related to the first saints of Sinai – Moses and Elijah. During the third quarter of the fourth century CE, two of the key innovators of Syrian monasticism, who had established the most important monasteries near Antioch and the Syrian Desert, reached Sinai. These were Julian Saba (Vööbus 1960: 42–51; Theodoret's *RH*, Canivet and Leroy-Molinghen 1977: 41–43, 222–224) and Simeon the Elder (Vööbus 1960: 42–51). Julian Saba arrived in Sinai accompanied by some of his disciples. Theodoret of Kirus, who documented their activities during the first half of the fifth century CE, mentions that his source of information was his mother, who was a contemporary of these two ascetics (*RH* 6, 14). Theodoret does not state when they visited Sinai. However, it is known that Simeon the Elder died sometime between 375 and 380 CE, and it appears that his Sinai visit took place several years prior to his death. Julian Saba visited Sinai earlier, close to the death of Emperor Julian the Apostate in 363 CE (Theodoret *RH* 6, 14).

Julian Saba's visit was important for two main reasons: (a) This is the first historical source which mentions an incontestable Christian identification of Jebel Musa with Mt. Sinai – Σινα ορος, as well as providing data concerning the hermit monks residing there. (b) Julian Saba was the first to build a church on the mountain's peak, as related in *Religiosa Historia*:

> Ταύτην ἀποδιδράσκων - δῆλος γὰρ ἅπασι γεγονὼς εἷλκε πρὸς αὐτὸν διὰ τῆς φήμης τοὺς τῶν ἀγαθῶν ἐραστάς - , τὸ τέλος ἐπὶ τὸ Σίναιον ὄρος μετ᾿ ὀλίγων τῶν συνηθεστέρων ἐξώρμησεν, οὐ πόλεως ἐπιβαίνων, οὐ κώμης, ἀλλὰ τὴν ἄβατον ἔρημον βατὴν ἐργαζόμενος. Ἔφερον δὲ ἐπὶ τῶν ὤμων καὶ τὴν ἀναγκαίαν τροφὴν - τὸν ἄρτον φημὶ καὶ τοὺς ἅλας - καὶ κώθωνα ἐκ ξύλου πεποιημένον καὶ σπογγιὰν σμηρίθῳ προσδεδεμένην ὅπως , ἔι ποτε βαθύτερον εὕροιεν ὕδωρ, ἀνιμήσαιντο μὲν τῇ σπογγιᾷ, ἀποθλίψαντες δὲ εἰς τὸν κώθωνα ἀποπίοιεν. Τοιγάρτοι πολλῶν ἡμερῶν ὁδὸν ἐξανύσαντες, καταλαμβάνουσι τὸ ποθούμενον ὄρος καί, τὸν οἰκεῖον προσκυνήσαντες δεσπότην, πολὺν ἐκεῖ διετέλεσαν Χρόνον, τοῦ χωρίου τὴν ἐρημίαν καὶ τὴν τῆς ψυχῆς ἡσυχιάν τρυφὴν μεγίστην ἡγούμενοι. Ἐν ἐκείνῃ δὲ τῇ πέτρᾳ, ὑφ῀ῃ κρυπτόμενος Μωϋσῆς τῶν προφητῶν ὁ κορυφαῖος ἠξιώθη τὸν θεὸν ἰδεῖν, ὡς δυνατὸν ἦν ἰδεῖν, ἐκκλησίαν δειμάμενος καὶ θεῖον ἁγιάσας θυσιαστήριον ὅ καὶ εἰς δεῦρο διέμεινεν, εἰς τὴν οἰκείαν ἐπανῆκε παλαίστραν (Canivet and Leroy-Molinghen 1977: 222–224).

While Simeon the Elder's visit to Sinai lasted only one week, Julian extended his stay in the region in order to oversee the erection of the church, as well as to pray in seclusion. Julian's only provisions were a satchel containing bread, salt, a drinking cup and a sponge. The church Julian built was on the rock behind which Moses hid when God revealed himself.

Julian's church served as the subject of three of the twenty-four hymns composed by Ephrem the Syrian on Julian Saba (Vööbus 1960: 154; *CSCO* 323: 61–62, 71–76; possibly, Ephrem the Syrian is the figure referred to in the *Alphabeticon*, Ephrem 1–3). In Hymn 14, Ephrem glorifies Julian Saba and compares him to the great servants of God:

> It was you who so awed me, since here and in Mt. Sinai
> In the dwellings of His eminent followers, He raised you
> For his servants you so resemble
> The desert and mountain of His righteous devotees
> He gave you.

In Hymn 19 (*CSCO* 323: 71–73), Ephrem altercates with the Jews by comparing Mt. Sinai to the Old Testament and the church on the mountain's summit to the New Testament, maintaining the latter as a symbol of the ascendancy of Christianity over Judaism.

Hymn 20 is the longest, describing how Moses, by receiving 'the Law', represents a forerunner of the more important mission of Jesus. Following are selections from this hymn:

> (2) Great Moses, how his buildings are small
> The time of the tabernacle has passed
> Modest Saba, how his buildings are great
> The church of truth he built there

(3) Moses built a sacrificial altar
Spilling on it the blood of animals
Saba built a holy altar
Cleaving on it a live body
(4) A cloud hovers over the glory
Of Moses' tabernacle
The Holy Ghost spirit descended
On the elixir of life that Saba cleaved
(5) No man is greater than another is
Moses is outstanding and eminent
But the messiah is great as the Son of God
Great is his covenant
(7) Moses stood in his purity
At the peak of purity on Mt. Sinai
And his God showed him the plans
Of the Holy Ark made there
(8) And Saba stood in prayer
In the holy cave on Mt. Sinai
When suddenly he envisioned
The church's plan and dimensions
(9) Moses made the tabernacle
With the strength and treasures of many
Saba built the holy church
With the strength of few who fast
(10) Moses brought down the stone tablets
To a people whose heart was stone
The sons of Saba wrote the truth
On the hidden slabs of their hearts
(11) When Moses prostrated himself on the mountain
The people below bowed to a calf
Saba prostrated himself on the summit
In the place where Moses bowed down and radiated
(18) Moses put the snake in the desert
And whosoever gazed upon it was healed
Saba set the cross on the mountain
And all wayward souls were redeemed
(*CSCO* 323: 73–76).

Thus, the erection of the church on the summit of Mt. Sinai represents a hallmark in the ascetic analogy between Moses and Elijah and the Christian monks continuing their mission, choosing to do so on Mt. Sinai, the very site of consequential biblical events. The descriptions by Theodoret and Ephrem provide no architectural data on the size or shape of this church.

Some twenty years after the erection of Julian Sabas' church, the pilgrim Egeria reached the site to pray:

> The church which is now there is not impressive for its size (there is too little room on the summit) but it has a grace all its own. And when with God's help we had climbed right to the top and reached the door of this church, there was the presbyter, the one who is appointed to the church, coming to meet us from his cell. He was a healthy old man, a monk from his boyhood and an 'ascetic' as they call it here (Wilkinson 1971: 93–95).

Egeria's description makes it clear that the church was small and located at the very summit of the mountain, and that the 'ascetic' (a term employed by Egeria only six times, mostly describing the extremely austere monks of Sinai and Horan) who served in the church dwelt in a cell which was not located at the summit.

Procopius of Caesarea writes:

> Emperor Justinian built them a church which he dedicated to the Mother of God, so that they might be enabled to pass their lives therein praying and holding services. He built this church, not on the mountain's summit, but much lower down. For it is impossible for a man to pass the night on the summit, since constant crashes of thunder and other terrifying manifestations of divine power are heard at night, striking terror into man's body and soul. It was in that place, they say, that Moses received the laws from God and published them. And at the base of the mountain this emperor built a very strong fortress and established there a considerable garrison of troops
> ...ταύτην δὲ τὴν ἐκκλησίαν οὐ κατὰ τοῦ ὄρους ἐδείματο τὴν ὑπερβαλήν, ἀλλὰ παρὰ πολὺ ἔνερθεν... (Procopius, *Buildings* V viii 5–9).

This is not the place to assess the reliability of Procopius' writings, which has been widely discussed elsewhere (Mayerson 1978; Solzbacher 1989: 252–258). The significance of this source for the subject at hand is that this is the only mention of a church dedicated to the Virgin Mary (Theotokos) at Mt. Sinai. The source clearly states that the church was not erected on the summit, though on the other hand, Procopius makes no mention of any connection between the Theotokos church, somewhere on the mountain, and the fortress built at the base of the mountain, at the site of the Burning Bush. Thus, it may be understood that there is no connection between the church of the Theotokos and the fortified Mt. Sinai Monastery. This monastery, just like its counterparts, contained a church which was dedicated to the predecessors of Jesus through transfiguration, Moses and Elijah (see discussion of the Sinai Monastery below); a church commemorating the Theotokos was erected on the mountain's summit. The latter, in our opinion, was the church referred to by Procopius. The historian's incon-

sistency apparently is the result of his familiarity with the prohibition against spending the night on the summit. Though he himself never visited the site, he probably associated this information with the location of the church.

The Piacenza Pilgrim, who visited Sinai during the reign of Justinian or Justin II, writes:

> ... And as we were moving on in order to climb Sinai,.. to the topmost peak of the mountain. Up there is a small chapel, about six foot wide and six foot long. No one presumes to spend the night there, but the monks go up to perform God's service as soon as day breaks. At that place it is a pious act for every one to cut his hair and beard and throw it on the ground, and I too laid hands on my beard there (Wilkinson 1977: 87v184).

John Climacus' teacher, Martyrius, took him to the summit of Mt. Sinai and shaved his head when he was twenty years old (Daniel of Raitho *PG* 88: 608; see a similar account by Anastasius the Monk, *Narratives* 6, 34).

Eutychius of Alexandria, of the tenth century, provides the only historical account of the erection of a church on the summit of Jebel Musa by Justinian:

> ... It was his intention to build the monastery high up on the mountain and to leave the Bush and the tower (where they were). However, he rejected the plan because of the water since there was no adequate supply of water on the mountain... On the mountain top, above the spot where Moses received the law, he built a church (*PG* 111: 1071; *CSCO* 50: 202).

Anastasius indicates that there had been a large church on the summit, headed by an overseer (παραμονάριος) appointed by the Sinai abbot, aided by an assistant. The church had several doors and numerous lamps, and was named 'the Holy Church of the Summit in Sinai'. Scores of pilgrims visited the church, chiefly large groups of Armenians; indeed, one of the church attendants was Armenian. Many Christians believed that the church had the power to cure the sick due to its proximity to God, who answered the prayers of true believers (*Narrative* 18). It was the custom to burn incense in the church every evening prior to the descent from the mountain, and to recite the dawn prayer just before sunrise. Prior to the Arab conquest in the mid-seventh century CE, it was forbidden to spend the night on Mt. Sinai. Subsequently, when the Moslems adopted the holiness of the summit (apparently in the mid-seventh century), the monks were forced to allow the devout to spend the night on the mountain. On the Pentecost (Πεντηκοστῆς), the holiday marking the giving of the Covenant, a special mass was held on the summit which attracted monks from all over the region (*Narrative* 3). Anastasius does not state that the church was named for the Theotokos, and it appears that this name, given by Justinian, was not accepted by Sinaitic monks. *Narrative* 38 indicates that there were two holy rocks on the summit, one inside the church and the other outside it. The sanctity of the latter may be the result of the increase in the number of pilgrims to Sinai, so that the large organized groups of pilgrims visiting the mountain were able to pray simultaneously outside the church, thus increasing the number of worshippers at any one time. *Narrative* 9 relates that the church had a storehouse for oil, which apparently was located in one of the podium's vaults.

The Archaeological Remains

The Church

The archaeological remains discovered on the summit unequivocally support Eutychius' and Anastasius' descriptions. The numerous architectural components found there undoubtedly belong to the tradition of Justinian construction, as they are surprisingly similar to architectural elements found in the Justinian church in St. Catherine's Monastery (Fig. 4; Wilson and Palmer 1869: 208). This similarity indicates that during this period the church had been of medium size, though elegantly appointed. Most of the architectural components are made of granite, many bearing incised crosses and other motifs, also found at St. Catherine's Monastery (Fig. 5).

The present-day chapel, built in 1934, and the adjacent mosque, both contain ashlar stones taken from the church presumably erected by Justinian. The British Survey provides a precise description of the remains (Plan 4):

> The chapel and mosque have been built with stones taken from the ruins of an early church or convent, and of this there are many fragments – lintels, jamb stones, and capitals – scattered over the mountain side (Wilson and Palmer 1869: 208).

Lagrange (Plan 4; 1897: 119–121) also describes the remains and draws a more detailed map than that of the British survey. Meistermann (Plan 4; 1909: 149–152) tries to reconstruct the early church, attempting to do so relating to the historical data and Egeria's report (whom he calls Sylvia). He dates the remains to the fourth century CE. Solzbacher (1989: 399) distinguishes

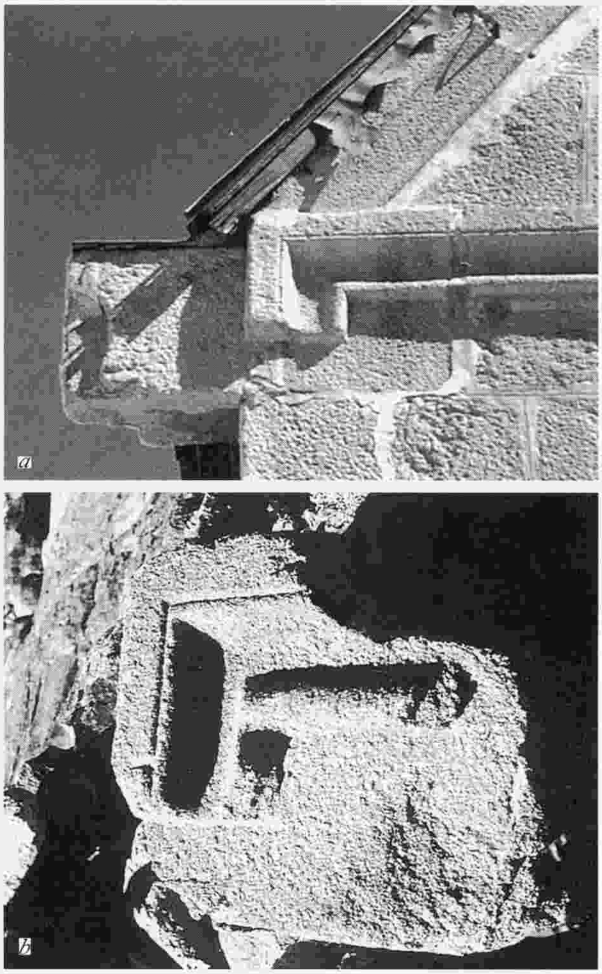


Fig. 4. Cornerstones: (a) St. Catherine's Monastery church; (b) Mt. Sinai church.

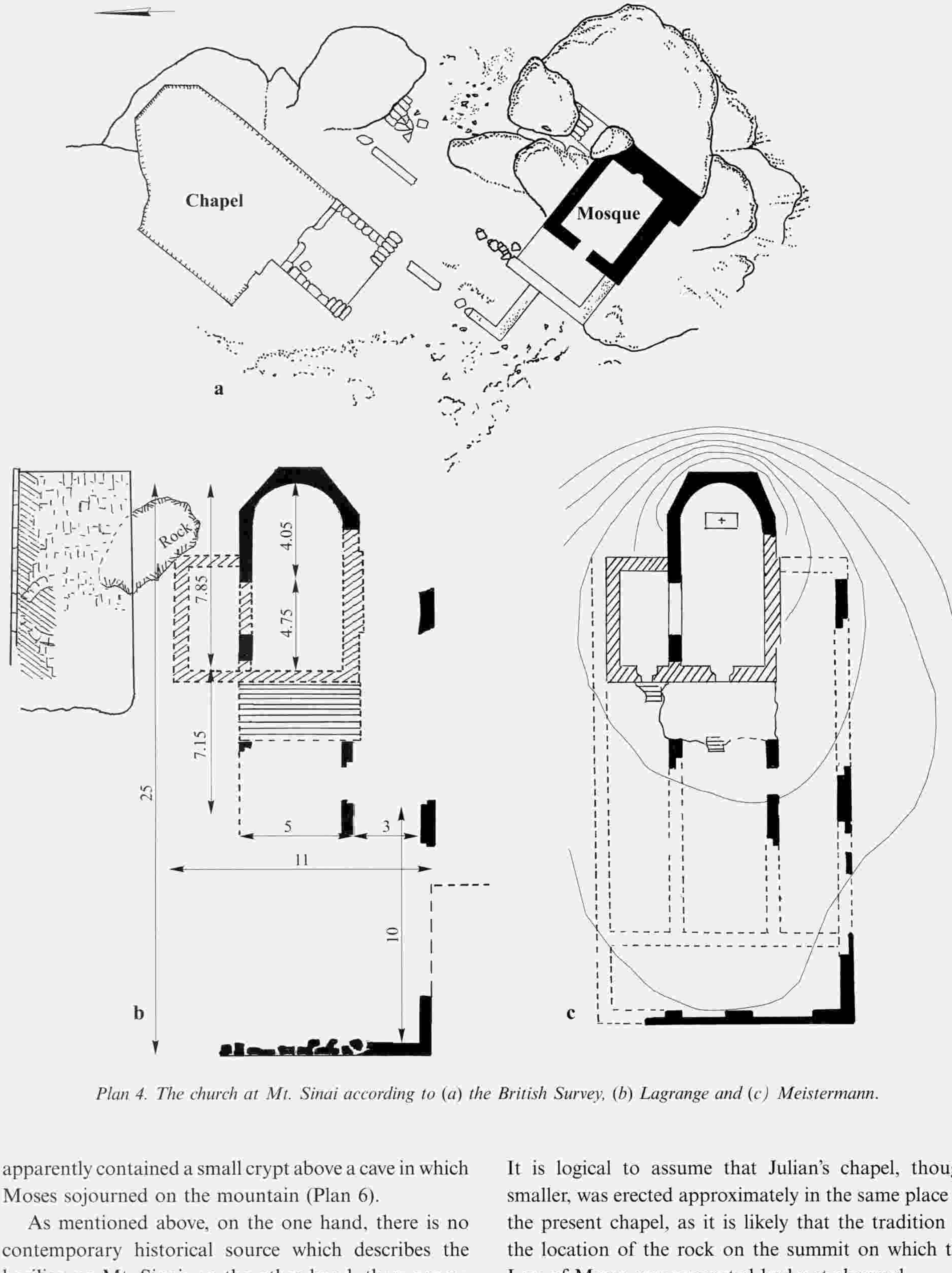


Fig. 5. Architectural details: (a) St. Catherine's Monastery church; (b) Mt. Sinai church.

the remains of four churches earlier than the present church. He relegates the remains in Meistermann's plan to Julian Saba's fourth-century church.

These descriptions, along with the presently visible remains, indicate that the ground had been levelled by a podium supported by barrel vaults, two of which have been preserved in the base of the southern aisle, as well as attesting to the use of ashlar stones as long as a meter and more. The remains allow us to reconstruct a basilica with a nave and two aisles, an external apse angular on the outside and round inside, and a narthex. None of the remains allude to the existence of an atrium, and it cannot presently be determined whether the church had been uni- or tri-apsidal (Plan 5).

The church was *c.* 25 m long and 11 m wide, the nave *c.* 5 m wide and each aisle 3 m wide. The pedestal, 0.70 m wide, was based on two columns, which were incorporated in the northern wall of the chapel built at the beginning of the century, flanking the entrance to the Chapel of the Angel Michael. (This chapel, described by Lagrange and Meistermann, was destroyed in the 1930s, to be replaced by the present, larger chapel.) Two rows of five (or six) columns each may be reconstructed, with a 4 (or 3.2) m intercolumnar spacing. An arcade topped the columns. The bases of the arches, which rested on the columns, were adorned with crosses encircled by a round frame. The external walls had windows similar to those in the church of St. Catherine's Monastery (Fig. 6). This similarity is manifest when comparing the stone bearing a cross in the monastery and the upper stone which was published upside down by Forsyth and Weitzmann (1970: Pls. XXX, XXXI, XLI). Encircled crosses were incised on the jambs and cornices too, so that, along with the letters ΘK, it seems that these had been the main decorative elements in the church. The altar was built above the rock behind which Moses hid when God revealed himself. The southern aisle had

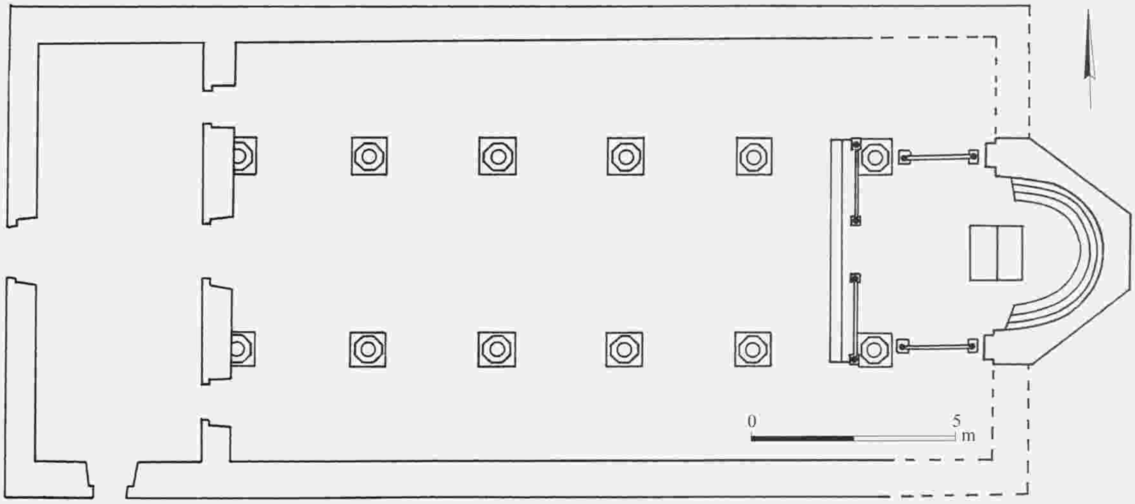


Plan 4. The church at Mt. Sinai according to (a) the British Survey, (b) Lagrange and (c) Meistermann.

apparently contained a small crypt above a cave in which Moses sojourned on the mountain (Plan 6).

As mentioned above, on the one hand, there is no contemporary historical source which describes the basilica on Mt. Sinai; on the other hand, there are no architectural remains which may be related to the small chapel built by Julian Saba in the fourth century CE. It is logical to assume that Julian's chapel, though smaller, was erected approximately in the same place as the present chapel, as it is likely that the tradition of the location of the rock on the summit on which the Law of Moses was presented had not changed.

The letters ΘΚ, the abbreviation of 'Theotokos' (Avi-Yonah 1940: 70), appear in relief or deep incision,



Plan 5. The church on the summit of Mt. Sinai.

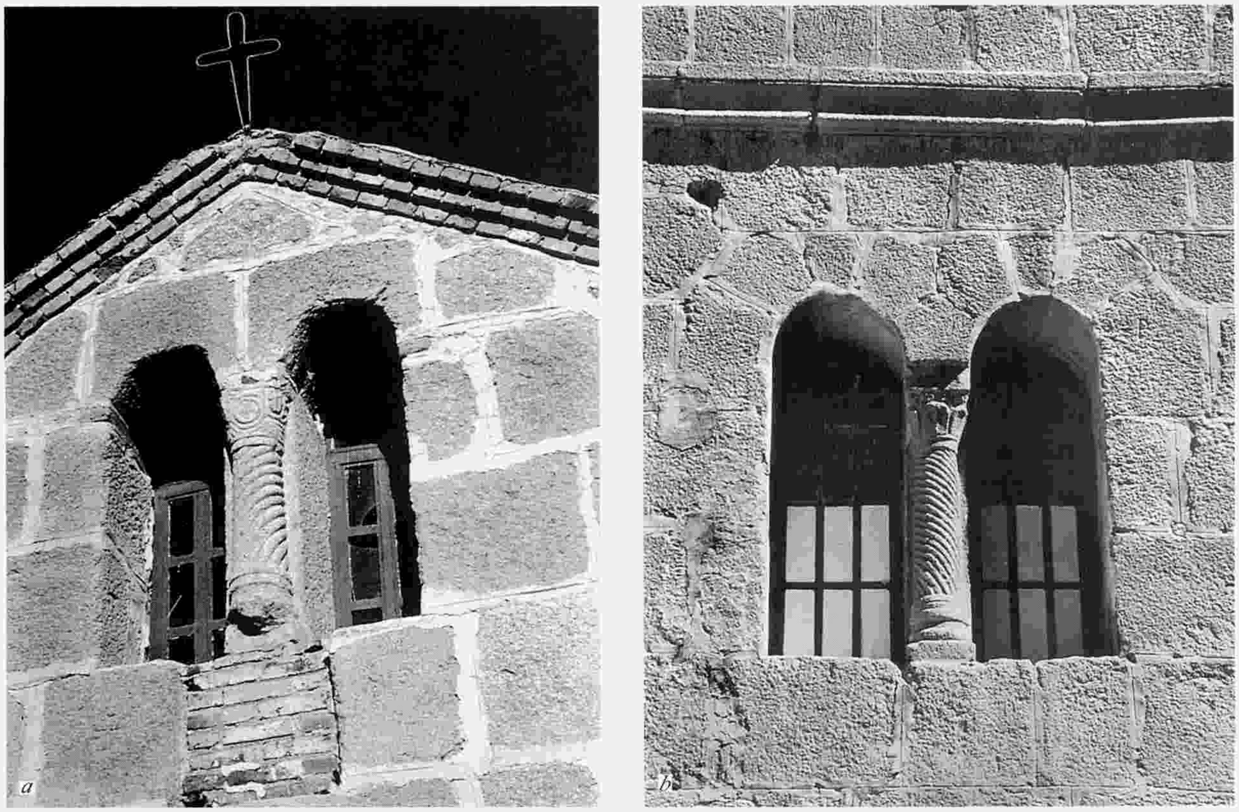
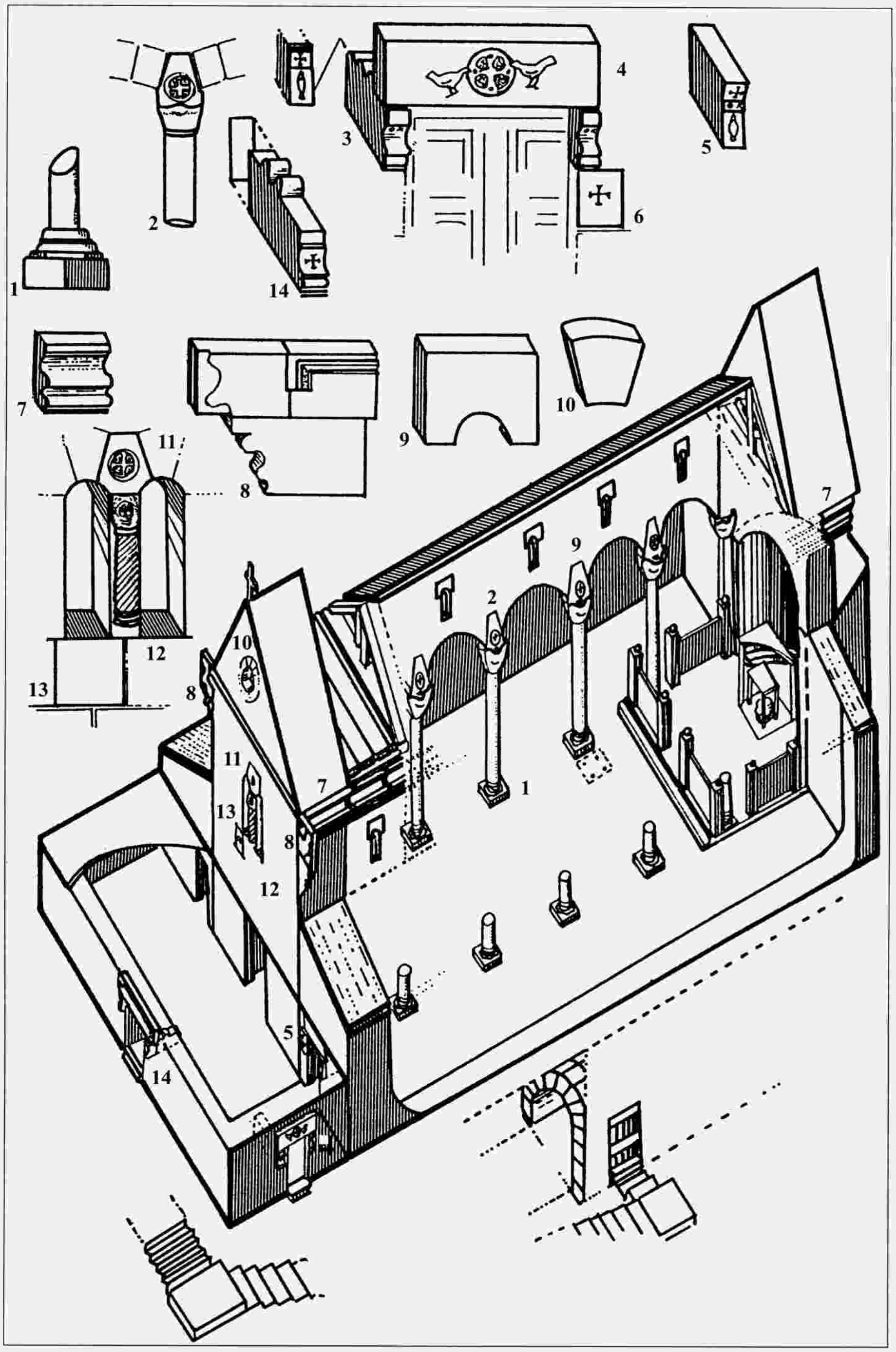


Fig. 6. Architectural details: (a) Mt. Sinai church; (b) St. Catherine's Monastery church.

usually together with the framed cross, on eight architectural elements (still visible on the mountain; Fig. 7), as well as on more than twenty stones, used as mason's marks (additional mason's marks were found as well). These letters support the view that the builder of the basilica on the summit – Justinian in our opinion – dedicated it to the Theotokos. Moreover, Procopius, writing about the church dedicated to the Theotokos,



Plan 6. The Justinian church on the summit of Mt. Sinai – an isometric reconstruction.

was referring to the Mt. Sinai church and not to the Burning Bush church.

That Justinian's church in the Sinai (St. Catherine's) Monastery was presumed to be dedicated to the Theotokos (Weitzmann 1982: 5, Essay 1) is apparent: Eutychius mentions that the pre-Justinian church in the tower which had been built at the site of the Burning Bush during the fourth century CE was indeed hallowed in her honor.

Among the architectural elements found on the summit were several granite columns, 0.30 m in diameter, as well as several marble column fragments, 0.10 m in



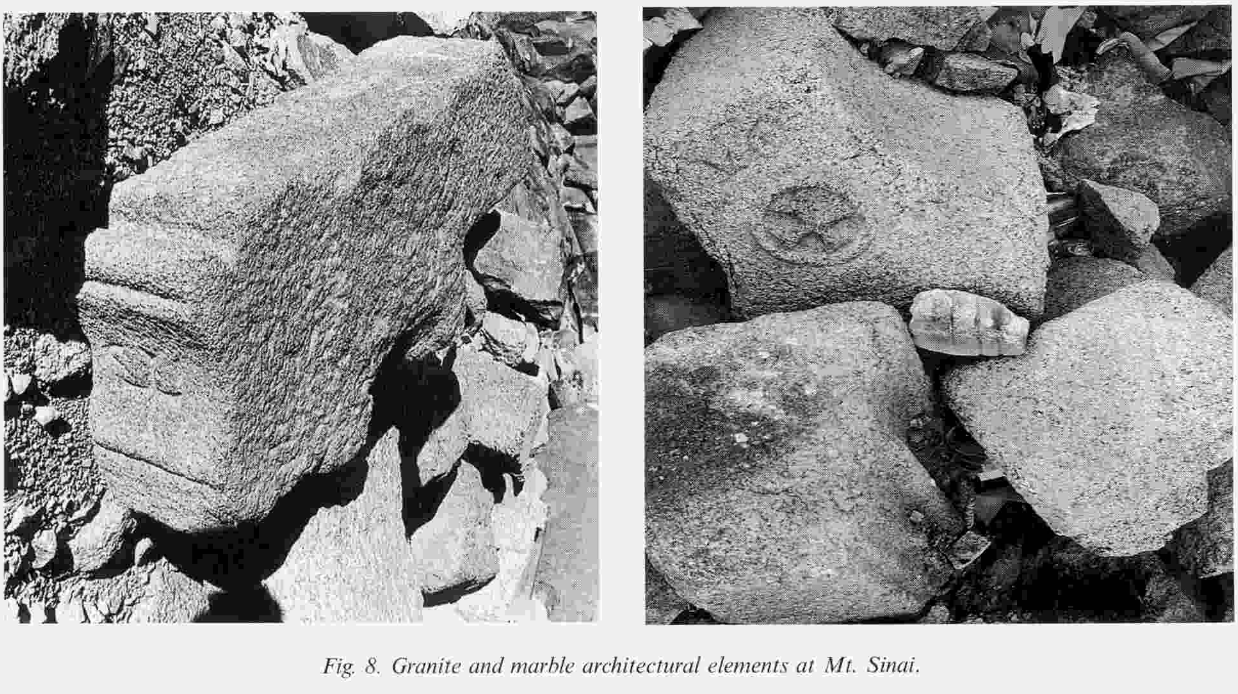
Fig. 7. Mt. Sinai – letters incised on an architectural element.

diameter. These remains indicate that there had been a ciborium, ambo, or altar table in the Justinian church. This supports our opinion that the erection of the structure had been completed, as it is improbable that the paraphernalia of the ecclesiastic interior design would be brought to the summit before the church itself would have been built (Fig. 8).

The total absence of columns and capitals is somewhat perplexing. Wilson and Palmer reported on capitals on the mountain, but did not present illustrations thereof. In Wadi El-Arbaiʿn, exactly beneath Mt. Sinai, is the monastery of Deir El-Arbaʿin (see below). The mouth of the well in the Deir El-Arbaʿin monastery was built of a fine octagonal marble base (Fig. 9). This base possibly rolled down the mountain following the destruction of the church, and was in secondary use in the well's mouth after having a hole drilled through it. We cannot find any other logical explanation for the existence of such a marble base in this remote place.

The remaining capitals and columns were apparently of marble, and were therefore robbed and used in the lime industry at a later date. (It should be noted that the granite massif is poor in the calcium carbonate deposits necessary for the production of lime.) Octagonal bases are known in several Justinian buildings; bases similar in shape and size to the base from Deir El-Arbaʿin flanked the chancel screen in the Justinian church at Abu-Mina (Grossmann 1989: 110–111).

Based on the plan provided by the British survey, the conclusions of Lagrange and Meistermann, and the extant remains presently seen on the mountain, as well as comparison of similar architectural elements in St. Catherine's Monastery, a reconstruction of the church is proposed (see Plan 6). The church on the summit was smaller than that in the Sinai Monastery as a result of the limited space available to the former.



a *b*

Fig. 8. Granite and marble architectural elements at Mt. Sinai.

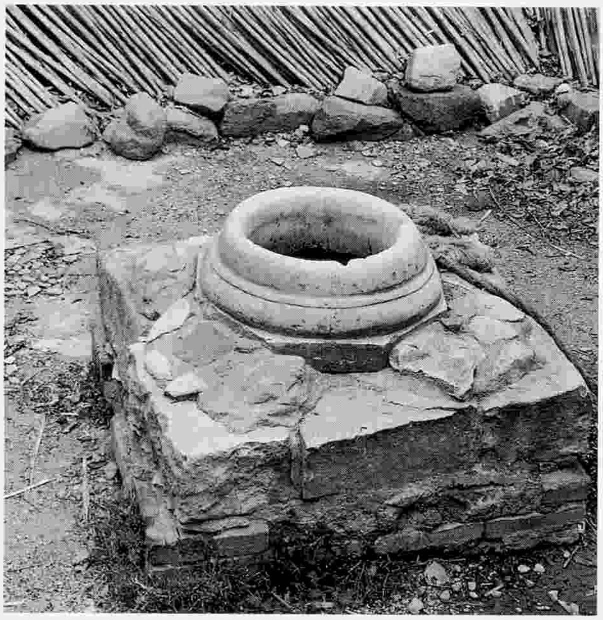


Fig. 9. The mouth of the well in the Deir El-Arbaʿin monastery.

After the construction of the Justinian podium, the area measured a mere 20 × 30 m (Solzbacher 1989: 410).

The only apparent difficulty with our thesis is the description of the Piacenza Pilgrim. He described the fourth-century church which had been built by Julian Saba. In order to solve this problem we suggest an earlier date for the Piacenza Pilgrim's trip to the east: 555 to 563 CE – after the building of the Sinai/St. Catherine walls but prior to the erection of the Theotokos and the Transfiguration churches by Justinian.

We categorically conclude that the Mt. Sinai church and the Sinai Monastery's church were built at the same time, since there is a total resemblance between numerous architectural elements in both churches, as well as many elements incised with the Greek letters ΘΚ. In our opinion, this indicates that the architectural components of each church were simultaneously carved for the two projects initiated by Justinian. This pair of letters showed the workers to which church the stones should be allocated.

Numerous inscriptions carved on the building stones and the unworked stones were found on the mountain and have been published (Rabino 1938: Ins. No. 6; Beneševič 1925: No. 56; Ševečenko 1966: 263, 264).

The Church's Demise. Though we have no direct historic source on the demise of the church, two sources offer indirect evidence of the period. The monk Anastasius, in *Narrative* 2, relates that the church was desecrated, but not destroyed, by Arabs, and it continued to function in the seventh century CE. We can conclude from the tenth-century writings of Eutychius (Ibn Batriq) that the church no longer existed. Therefore, it was destroyed sometime between the eighth and tenth centuries CE (Fig. 10).

The church's destruction was probably not the result of a specific event, but rather due to the reduction in the population of Sinai monks at the end of the Umayyad period and their seclusion in the fortified Sinai Monastery. The monks were thus unable to tend to the isolated mountaintop church, where overnight stays were forbidden. The ritual objects, the furniture and other gifts brought by pilgrims led to stories of hidden treasures, and brought about a series of thefts and destruction by the Bedouin.

The monks, aware of their inability to protect the church, probably removed all valuables to the Sinai Monastery, and thus, indirectly, brought about its abandonment. Valuable architectural elements were probably removed for safekeeping. It is possible that the inscribed chancel screen recently found in a ground-floor storeroom in St. Catherine's Monastery originated in the Mt. Sinai church (unpublished, Fig. 11). Its Greek inscription reads:

Τουτο νικα. Εισ θεος ο βοηθο(ς) καναθον συν...

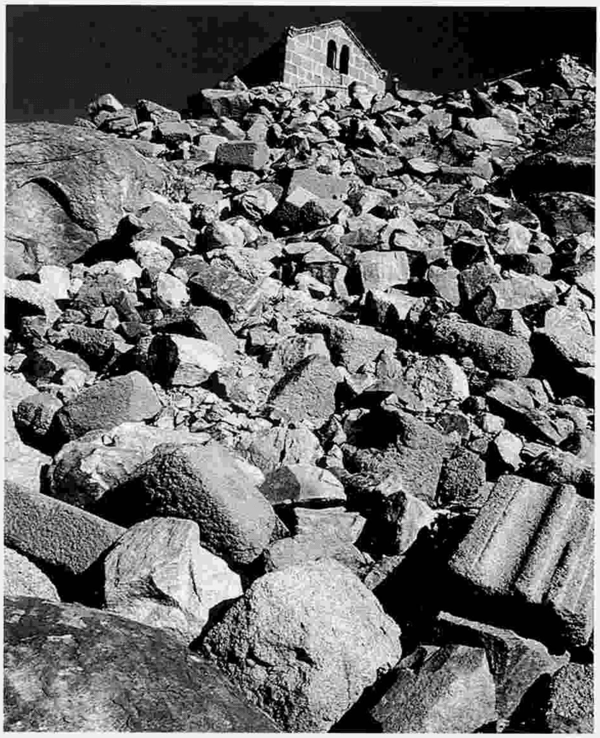


Fig. 10. The destruction rubble of Justinian's church atop Mt. Sinai.

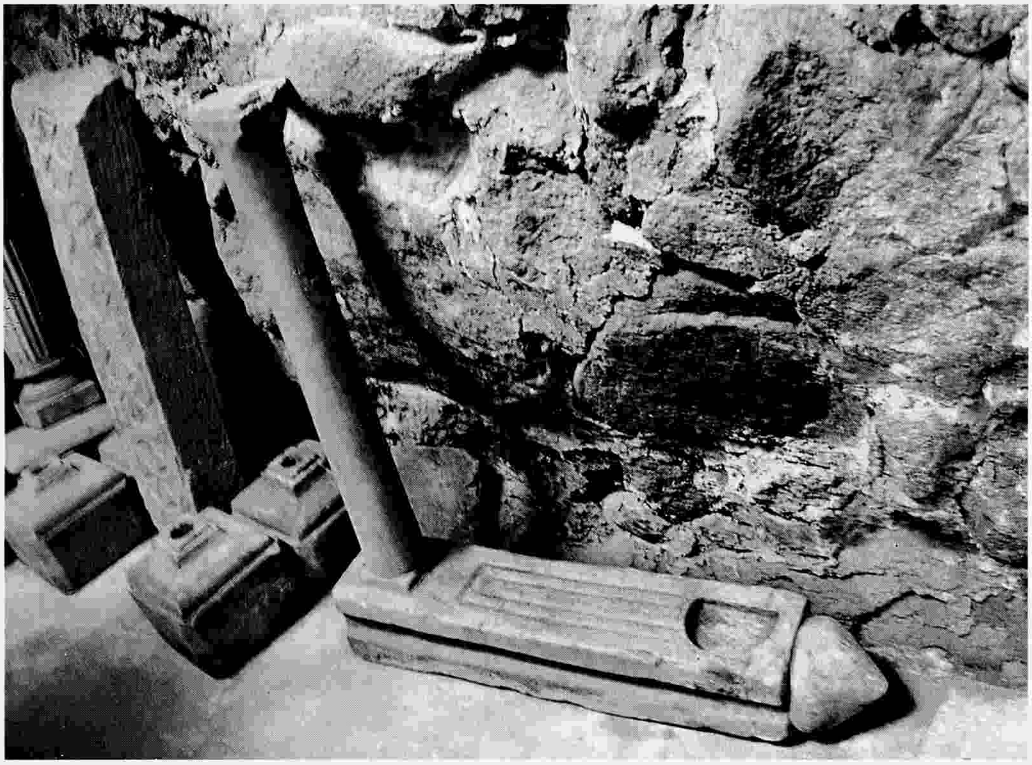


Fig. 11. Some elements of a chancel screen at St. Catherine's Monastery.

Many other objects, today in St. Catherine's Monastery, e.g. the renowned bronze cross and some of the icons (below, discussion of the Sinai [St. Catherine's] Monastery), may have originated in the Mt. Sinai church.

Cisterns

Cisterns dated to the Byzantine period were located *c.* 70 m west of the chapel. The upper cistern is rectangular, built of ashlar stones; its excess water overflows into a lower cistern, which is also built of ashlars and plastered. It is square (2 × 2 m), has rounded corners and is 2 m deep.

A Hermit's Cell

On the very steep south slope of Jebel Musa, some 250 m below the summit, is an elongated hermit's cell in the rock scarp, constructed of small fieldstones and plastered. The built wall of the cell is rounded, both ends adjoining the cliff, with an opening 0.90 m high and 0.75 m wide. The cell was preserved in its entirety, aside from the door. A single cross was drawn inside. This cell is completely isolated, with a particularly arduous approach from the summit of Jebel Musa, as well as from Jebel Sufsafa. It appears that this was the cell of the monk who was responsible for the upkeep of the chapel on the summit at some time during the Byzantine period.

Jebel Sufsafa (Mount Horeb)

The main source for the archaeological remains on Jebel Sufsafa (see Plan 3) is the archaeological survey conducted by the *Tzukei David* Field School in 1976–1977 by A. Goren and I. Finkelstein (partly published in Finkelstein 1985: 41–79; most of the finds identified by Goren's survey team remain unpublished). The plans and drawings published here are from unpublished reports of the *Tzukei David* Field School; some are field plans from the archives of the Archaeological Staff Officer of Sinai (we thank A. Goren for his permission to use this material). The names and site numbers employed are from the survey reports. The sites published by Finkelstein are summarily described here, omitting plans and illustrations which appear in his publication. The sites published for the first time are described in more detail.

Site 2: Valley of St. Elijah
5954015790 UTM 1,940 m asl

This valley, composed of two rectangular valleys at different elevations, is the largest on Jebel Sufsafa, joining Jebel Sufsafa/Mt. Horeb and Jebel Musa/Mt. Sinai (according to Christian tradition).

The valley was formed at the juncture of two wadis, which originate at the watershed between Wadi El-Leja on the south and Wadi Ed-Deir on the north, both flowing from southwest to northeast. The upper valley, which contains St. Elijah's chapel, is located in the easternmost of the two ravines, while the lower valley is located in the western ravine. The wadi resulting from the join of these two ravines drains into Wadi Ed-Deir by way of Sikkat Sidna Musa.

The origin of the name, 'Valley of St. Elijah', stems from the belief that this was the spot on Mt. Horeb where Elijah found refuge (I Kgs 19: 9), to be fed by the ravens and addressed by God. This tradition apparently began in the fourth century CE. The pilgrim Egeria was the first to describe this valley:

> We passed on to another mountain next to it which from the church there is called "On Horeb". This is the Horeb to which the holy Prophet Elijah fled from the presence of King Ahab, and it was there that God spoke to him with the words, "What doest thou here, Elijah?, as is written in the Books of the Kingdoms" (I Kings 19:9). The cave where Elijah hid can be seen there to this day in front of the church door, and we were shown the stone altar which holy Elijah set up for offering sacrifice to God (Egeria 4.2: Wilkinson 1971: 95).

Thus, according to Egeria, a church was erected atop the cave as early as the fourth century. This church had an overseer (παραμοναριος) at the beginning of the seventh century, according to Anastasius, *Narrative* 1. In the Middle Ages, a larger church was built, which included chapels dedicated to Elijah, Elisha and St. Marina. Frescobaldi initially described these chapels in the fourteenth century (Bellarini and Hoade 1948: 60–62), with further details added by Felix Fabri in the fifteenth century (*PPTS* 1890 X: 300–302).

The Archaeological Remains

The Chapel and Other Structures

It is impossible to reconstruct the Byzantine chapel in the valley, though the state of preservation of other holy sites on the mountain indicates that it had been located on the spot of the present triple chapel, near the traditional site of Elijah's cave of refuge. The architectural elements and extant walls at the site are evidence of the earlier building.

Aside from the chapel, remains of four additional structures were found in the valley (Fig. 12):

A. A building on a rock shelf some 18 m south of the well, on a spur separating the two valleys which compose St. Elijah's Valley; this spur affords a panoramic view of the entire valley. The remains of the ancient structure are covered by modern construction. The rocks nearby bear numerous inscriptions carved by pilgrims, mostly in Cyrillic and Arabic. Though the exact shape of the ancient building is difficult to reconstruct, it appears to have measured 3.50 × 4.80 m, and was composed of two rooms. This building might have served as the dwelling of the abbot and his assistant.

B. A building northwest of the chapel, on the road ascending from the valley to Jebel Musa, of which two walls were preserved to a height of *c.* 0.50 m, built of fieldstones on both faces. Two rooms were preserved,

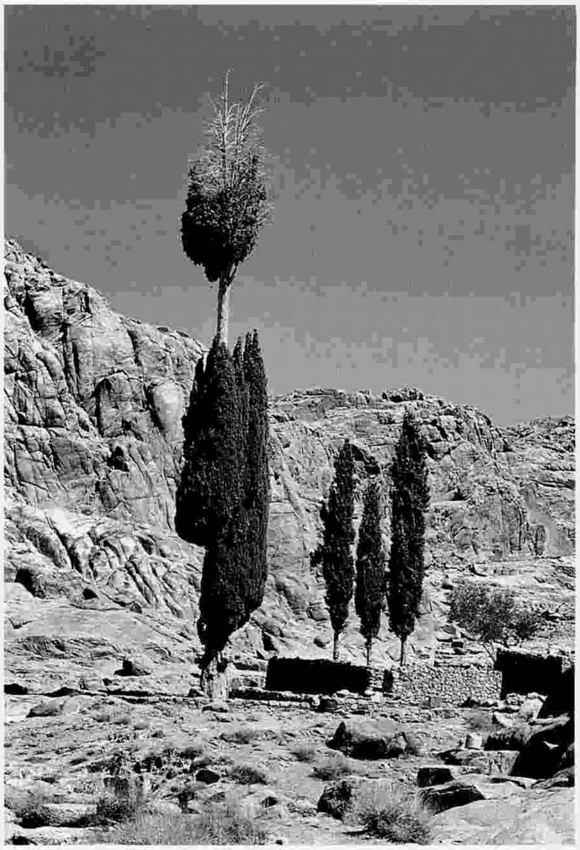


Fig. 12. St. Elijah's Valley in Jebel Sufsafa (Mt. Horeb) – general view.

one measuring 2 × 3 m and the other 2.60 × 2.50 m; the walls were 0.80 m thick. The structure contained two additional rooms of unknown plan.
C. A building on a low rock shelf on the western side of the valley, on the road leading to the Valley of St. John. This structure is rectangular and contains one room measuring *c.* 2.50 × 3 m. It appears that the entrance to this room had been in the southern wall, which was not preserved.
D. A building in the southwestern end of the lower valley, found completely in ruins. Its stones were reutilized for later construction in the valley; its plan is unknown.

Hermit-Cells
Four hermit's cells were found near the valley, two of which are located in its upper part, near the ascent to Mt. Sinai (Fig. 13). An additional cell was discovered in the west of the valley and the fourth in the south.

Dams and Agricultural Plots
The wadi draining the Valley of St. Elijah to Wadi Ed-Deir is dammed on its northern edge, where the stepped road leading up to St. Catherine's Monastery begins; the dam is 12 m long and *c.* 2 m wide at its base. The part of the dam facing the valley is rounded and is founded on both ends on rock. The dam had three major functions: (a) to retain soil and create a level agricultural plot above the dam; (b) to create a reservoir in the valley, using the water for irrigation of the arcosic soil; and (c) to prevent flood waters from flowing into the valley, which could cause damage to the walls of St. Catherine's Monastery. The dam was reinforced, raised and plastered during the 1930s.

In addition, there are six dams in both components of the valley. The two to the north of the central dam are apparently earlier, and they retain a small agricultural plot. Two other dams separate the lower part of the valley, which runs mainly north–south, and the upper part, which contains the well, cypresses and chapels. The fifth dam divides the upper valley into two: a lower part with the cypresses and well, and an upper part with the chapels. This network of dams creates four fenced orchards whose cultivation potential covers an area of *c.* 5 dunams.

The upper orchard is located under the chapels, above the well and the cypresses, while another surrounds the well and the cypresses. The third orchard, formed by the large dam, still has crab-apple trees growing in it and is watered most of the winter. The fourth and largest orchard is located on the southern side of the lower valley.

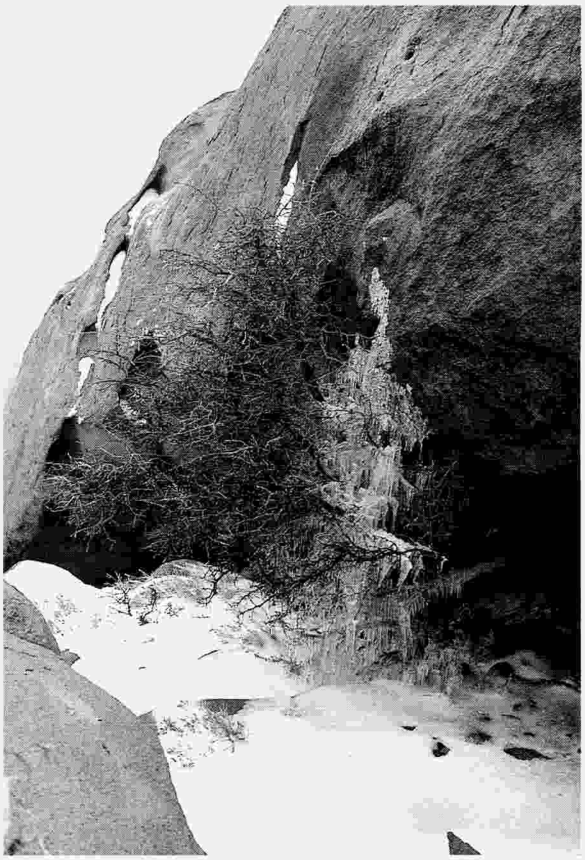


Fig. 13. Hermit-cell in winter.

The Valley of St. Elijah has a large drainage basin, receiving water from the slopes of Jebel Musa, as well as from both components of the valley and from the rock surfaces on the west, which separate this valley from the Valley of St. John.

The Well
The well is located in the upper valley. It is *c.* 5 m deep, with a lower diameter of 2.50 m and an upper diameter of *c.* 3 m. A spiral flight of steps along the walls leads down to its bottom.

This well is perennially watered from water collecting in the arcosic soil, permeating down to a breach in the rock on which the well is built.

Summary and Conclusions
The Valley of St. Elijah, the largest of all valleys in Mt. Horeb (Jebel Sufsafa), is also the closest to Mt. Sinai (Jebel Musa) and the only one on the mountain's summit to boast a biblical tradition.

The valley is of great significance due to the fact that this is the last station before the ascent to Mt. Sinai, and every visitor would have to pass through it (Siqqat ʿAbbas Basha, which bypasses the Valley of St. Elijah, is new and shows no traces of an ancient path).

The valley contains *c.* 5 dunams of cultivated land and is well watered. Its orchards were relatively larger and well fenced compared to most orchards on Jebel Sufsafa.

An estimated 15–20 monks inhabited the valley, dwelling in the buildings and hermit-cells.

Site 3: Complex 210 and the Chapel of St. Anne
5948015840 UTM

This is a valley covering 15 × 50 m, formed by the artificial broadening of a ravine by a dam which retained soil deposits (Finkelstein 1985: 42). In the north of the complex is a prominent rock shelf, on which is built the later chapel dedicated to St. Anne (or 'the Church of Banaya' according to the Bedouin). Near the chapel are the scant remains of a Byzantine structure of unknown size and plan.

The valley has two levels, divided by a terrace wall which creates two orchards covering a total area of *c.* 400 sq m. A pool, fed by runoff waters from the wadi, was the main source of irrigation for the two agricultural plots, by way of a channel built along the scarp south of the upper plot. An additional pool was fed from another dam, which stored the runoff water from a rock fissure.

Two paths led to the valley. One, containing built steps and a cross cut into the rock, led to the north to the El-Loza Valley, while the other led to the south in the direction of Complex 220 (see below).

Site 4: Farsh El-Qasr (Complex 220)
5950515780 UTM

This valley is situated in the southeastern extremity of Jebel Sufsafa, in a ravine draining south to Wadi El-Arbaʿin (Finkelstein 1985: 42–47). The valley was formed by a dam on its western side which retained a pool, behind which was an orchard covering *c.* 1000 sq m. Behind this orchard was an additional orchard covering *c.* 450 sq m In the center of the valley, on a rock surface, stands a chapel with an external round apse and a prayer room; its second story was not preserved. The plan of an unexcavated building found adjacent to the chapel is unclear.

Three conduits fed the valley. Two were short, serving to irrigate the agricultural plots with water collected from the upper part of the wadi. The third, more than 300 m long, was built on retaining walls reaching a height of 4.5 m; this conduit came from the north and provided mainly potable water.

Near the chapel is a plastered hermit's cell under a boulder, with a prayer niche in its facade. On the slope leading down from the east into the valley were four additional cells.

The chapel and cells indicate that there had been a monastery in the valley, inhabited by five to eight monks.

Site 5: Complex 230
5950515795 UTM

This complex is situated just to the north of Complex 220, sitting on a rock step overlain with soil deposits, in the middle of a scarp looking eastward from a great height to the Valley of St. Elijah (Finkelstein 1985: 47–48).

The agricultural plots in the valley were created by a dam located in the east which retained soil deposits. The agricultural plots covered an area of *c.* 280 sq m and are surrounded by a partially preserved fence. On both sides of the orchard are two plastered collection pools. The water from the northern pool flowed into the orchard via a roofed channel, which traversed the western side of the complex, adjacent to the rock scarp.

In the center of the valley is a large ruined building whose extremely poor state of preservation precludes tracing its plan in detail. Two stepped paths from the north and south lead to the valley.

No pottery other than Byzantine was collected at the site, including sherds of bowls imported from North Africa.

Site 6: Complex 240
5949015820 UTM

This complex, situated *c.* 150 m north of Complex 230, is the highest surveyed on the mountain, located at the head of a ravine on horizontal rock surfaces (Finkelstein 1985: 48).

The complex consists of a small, one-room building and several agricultural plots in the wadi, separated from each other by a system of dams. The total area of the orchard covers *c.* 250 sq m. On the northwestern

side of the complex was a natural pool. From it water flowed in a conduit to the uppermost plot and to those below by gravitation.

A path leading from the complex eastward connects it to the other parts of the mountain. An additional path descends in a steep ravine to the southwest, to Complex 220.

It appears that this is the house and agricultural plot of a single monk.

Near the complex, to its south, is Building 250, which is a unique structure situated on the path leading from the Panteleimon Valley toward Complex 220. The building occupies a natural rock shelter. Above and below it, the cliffs are almost vertical and in between there is a wide step on which run the path and the water conduit leading to Complex 220. The height of the rock shelter reaches 4 m on the side of the path. The building consists of a courtyard, an entrance chamber and a hermit's cell. The entire building was covered with mud plaster painted with white crosses.

Site 7: The Valley of St. John's Complex and the Valley of the Dams (Complex 50)
5950015875 UTM

These two valleys and the remains in their environs are located on the northern side of the mountain, to the north of the main path which traverses the length of the mountain (from east to west). This part of Jebel Sufsafa, known as Jebel Armeziya, is also where the Chapel of St. John is located, as well as the built path, which leads from it to Mt. Sinai (Jebel Musa). Adjacent to the east of this valley is the Valley of the Dams. To the north of both valleys, near the cliff overlooking St. Catherine's Monastery, is Building 66 and remains of additional structures.

The modern Chapel of St. John is built over the remains of a Byzantine building larger than the present chapel, though its exact plan is unclear (Finkelstein 1985: 48–49). The structure is located on the western side of the Valley of St. John and measures 12 × 12 m, containing the remains of several stone-built rooms. The walls are *c.* 1 m thick. It appears that the building was composed of two units joined by a courtyard. The valley itself served as a large fenced orchard, which was created by a dam, erected for soil and water retention. The orchard covered *c.* 2.2 dunams. On the western side of the orchard, near the dam, is a pool, which collected floodwater.

The Valley of the Dams is named after the two dams meant for soil retention. This is a small valley covering about half a dunam, with especially deep and fertile land. On the western side of the valley, adjacent to the rock scarp, is a low mound on which are the remains of a rectangular structure measuring *c.* 4.50 × 5.50 m.

To the north of the Valley of St. John, close to the lookout point over St. Catherine's Monastery, are remains of three large Byzantine structures, two of which are designated as Sites 62 and Site 63. The structures are mostly destroyed, but the extant remains indicate extensive buildings built of mudbrick on a stone socle and roofed with tiles, a very rare phenomenon during this period in South Sinai. The third building, Site 66, is a large stone building erected above the cliffs of Wadi Armeziya, and adjacent to it. The western part is rectangular, measuring 6.50 × 6.10 m. The southwestern wall is well preserved to a height of 3 m, with two long, narrow windows. The mudbrick collapse indicates that a second story built of mudbrick topped the stone-built lower story. To the east is an additional rectangular wing constructed of narrower walls, measuring 3.5 × 6 m; this was possibly a courtyard. The building widens on the east, creating a trapezoidal shape; the poorly-preserved remains of this part preclude tracing a clear plan.

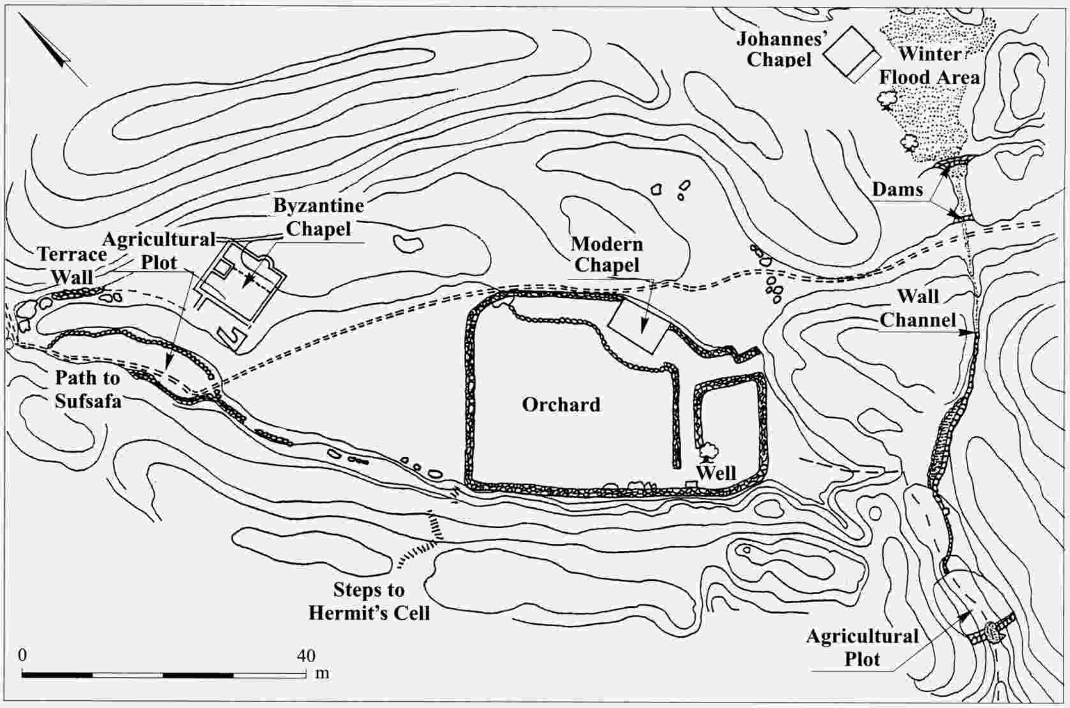
Close to Building 65 is a magnificent view of St. Catherine's Monastery, as well as the beginning of a stepped path leading to it, dating to the Byzantine period – presently not in use ('Siqqat Armeziya').

Four hermit-cells were found in the cliffs near the Valley of St. John (Sites 59–61 and 73 in the survey list). Cell 81 was discovered further to the west on a spur facing east toward Jebel Ed-Deir. This is a meticulously built cell, which, like many others throughout the mountain, allowed the occupant to sit and lie, but not to stand upright.

It appears that the two valleys and their immediate vicinity served as a center for a monastic colony inhabited by 10–20 hermit monks.

Site 8: The El-Loza Valley (Complex 70)
5949015865 UTM

This valley is situated on the main path traversing the length of Jebel Sufsafa, *c.* 70 m west of the Valley of St. John. This valley too is located in the artificial broadening of Wadi Armeziya (Plan 7).



Plan 7. Farsh El-Loza – the monastery (Complex 70).

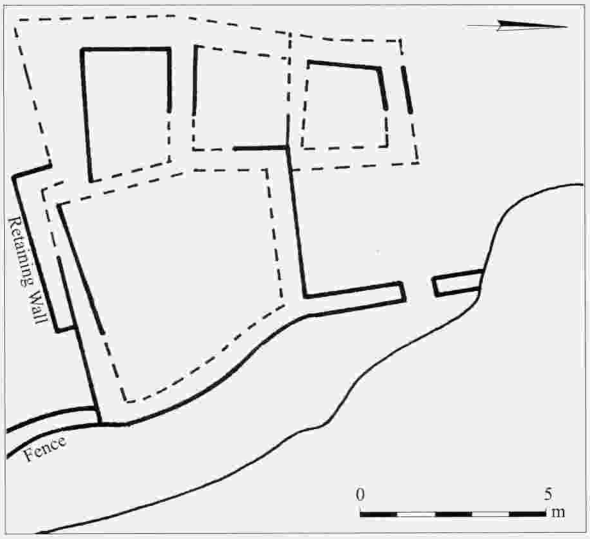
The valley served as the center of a monastic colony of hermits and contains the following remains: a central building with a chapel, a large orchard with a well, two additional small agricultural plots, dams, a water conduit and at least one hermit's cell.

The central building (the Byzantine chapel; 16 × 19 m; see plan in Finkelstein 1985: 53) is one of the most impressive structures on the mountain. It adjoins the cliff, on the edge of the northern side of the valley. Its rectangular ground floor contained six rooms, with two additional rooms in a tower at the southern corner, the latter preserved to a height of 5 m. The outer face of the eastern wall contains a rounded niche which served as the base of the prayer niche of the second-floor chapel. The latter was not preserved, and only the lower rounded niche and collapse nearby evince its existence.

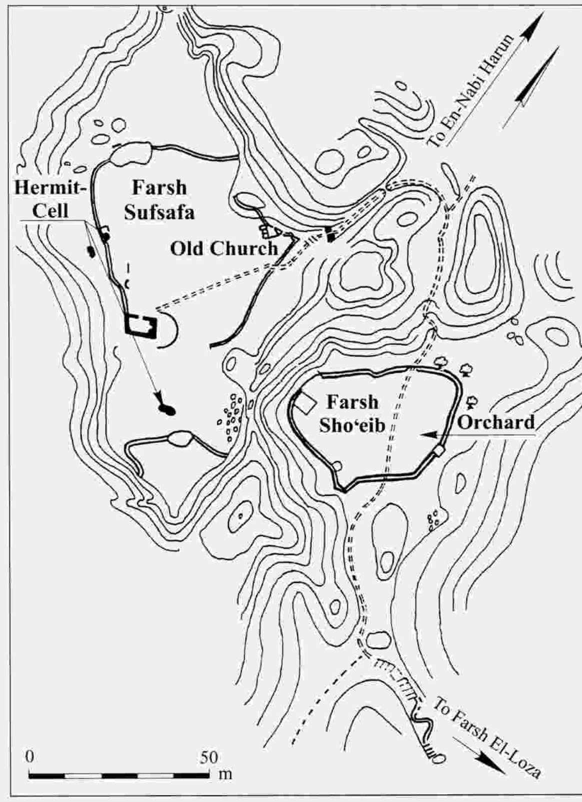
A fence surrounds the central orchard (in which the modern chapel is built). It covers an area of 1,350 sq m and contains a well. An additional plot, covering some 200 sq m, is located near the chapel. A dam spans the cliffs south of the valley; behind this dam is another, very small agricultural plot. A stepped path ascends the cliff to the northwest of the central orchard, leading to a built hermit's cell.

Site 9: Farsh Sufsafa, Farsh Shoᶜeib and Farsh Aḥmar (Complex 100)
5944015910 UTM

This compound, designated Complex 100 by its surveyor, B. Saas, was partially published (Finkelstein 1985: 50). It is located in three valleys on the western side of the mountain, near Ras Sufsafa. The westernmost valley, Farsh Sufsafa, contains a chapel dedicated to the belt buckle of the Virgin Mary. Both the valley and the mountain are named for the willow tree (Arabic *sufsafa*) growing near the chapel. The valley is square in shape and contains a modern chapel on the southern side of the *farsh*, as well as remains of an earlier structure, three hermit-cells and a fenced orchard. The central building in the valley (Plan 8) is located on its northern side. This structure covers an area of *c*. 75 sq m and contains four rooms; its lower courses are built of large fieldstones while the upper courses are of medium-sized stones. Three of the rooms were constructed from south to north on the levelled part of the orchard. The easternmost and largest room was built adjacent to the fence; it was preserved on the south to ceiling height. It is possible that this room served as a chapel with an inner



Plan 8. Farsh Sufsafa – the central structure (Complex 100).



Plan 9. Farsh Sufsafa and Farsh Shoᶜeib – the monasteries (Complex 100).

niche, but due to its poor state of preservation this could not be confirmed.

The fenced area of the orchard covers some two and a quarter dunams. In the western wall of the orchard, under a large boulder, was a hermit's cell adjoined by a small courtyard. An additional cell was located in the rocky slope above the latter cell. In the south of the valley there was a third cell, also under a large boulder.

Farsh Shoᶜeib is situated to the east of Farsh Sufsafa, in its close proximity. The main path, which traverses the mountain, passes through this valley on its way to Farsh Sufsafa. Crosses are incised all along this stepped path; it appears that there had been a gate through which the path passed, similar to St. Stephen's Gate. An additional path descends from Farsh Shoᶜeib to En-Nabi Harun. The latter path is steep and arduous, with numerous steps built in several places. About halfway to En-Nabi Harun is a small, square, one-room building, which apparently served as the dwelling of a hermit monk (Plan 9).

In Farsh Shoᶜeib a fenced orchard covers an area of *c.* 1,200 sq m. Two buildings are adjacent to the fence. The western structure is large, though its exact plan is unknown. The eastern structure is small and apparently served as a dwelling.

Structures and cells for hermits are found throughout the valley. Some 100 m north of the valley, on the path to En-Nabi Harun, is a building measuring 2 × 2 m, apparently a monk's dwelling. An additional cell located under a boulder is found to the south of the valley on the path to Farsh Aḥmar (Plan 9).

On the path along the watershed between Farsh Shoᶜeib and Farsh Sufsafa is a built prayer niche facing east.

Farsh Aḥmar is one of the largest on the mountain, located to the south of Farsh Shoᶜeib. The main path, which traverses the length of Jebel Sufsafa, passes through this valley, which is some 150 m long and an average of 30 m wide, contains an agricultural plot covering about two and a half dunams. No additional remains were found in the valley, and it apparently belonged to the monastic complex at Farsh Shoᶜeib.

Summary

It appears that together, these three valleys constitute a single monastic center. The central chapel was located in Farsh Sufsafa, while the monks lived in all the valleys and jointly worked the orchards, whose total area was *c.* 6 dunams. An estimated 15 monks could have inhabited this complex.

Site 10: The Chapel of Panteleimon (Complex 320)
5942015855 UTM

This monastic complex is located in the center of a valley, *c.* 150 m long and *c.* 40 m wide, on the southern side of the mountain (Finkelstein 1985: 50). Running parallel to its west are two smaller, narrow valleys. On the northern side of the central valley is the Chapel of St. Panteleimon, and to its north, in close proximity, are the remains of the earlier central building of the complex, the plan of which is unknown as its stones were robbed during the construction of the later chapel.

The agricultural plot is fenced, covering an area of about 3 dunams. It is irrigated by runoff water from a ravine entering the orchard from the south. The well-preserved water conduit running along this ravine is an example of the extraordinary effort invested in the water supply system, which was one of the prerequisites of survival on the mountain. The main path reaching the complex from the direction of Deir El-Arbaʿin to the south also passes through this ravine. An additional path with numerous steps reaches the complex from the direction of Farsh Shoʿeib to the north.

A hermit's cell is located on the eastern side of the complex.

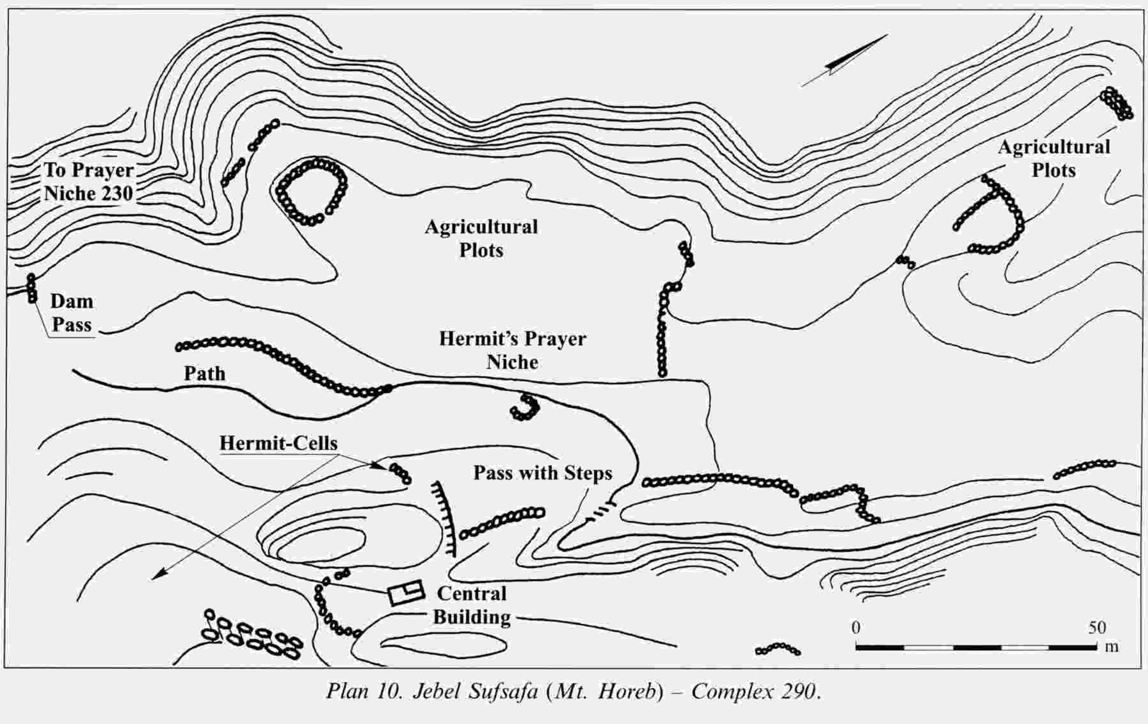
The area of the two western fenced agricultural plots is about half a dunam.

Though no other remains aside from the ruined building and hermit's cell were found in the valley and its environs, it appears that the site was inhabited by at least six monks.

Site 11: Complex 290
5952515790 UTM

Complex 290 is situated in a valley at the head of one of the wadis flowing down into the Valley of St. Elijah, continuing from there, at Siqqat Musa, to Wadi Ed-Deir. It is near the watershed separating this wadi and the wadi flowing south into Wadi El-Leja. The complex is the southernmost in Sufsafa and is close to Jebel Musa (Plan 10).

The complex contains a central building, dams for soil and water retention, fenced agricultural plots, hermit-cells, an additional building and prayer niches. Four paths meet at this complex: one from Wadi El-Leja into the southern side; the second from the Valley of St. Elijah into the upper, northern side; the third, with many steps, ascends from the southeastern part of the complex directly to Jebel Musa. The latter path is Siqqat Shahareij (the path – Arabic *siqqat* – terminates close to a



Plan 10. Jebel Sufsafa (Mt. Horeb) – Complex 290.

cistern on the peak of Jebel Musa). The fourth path is the northern continuation of Siqqat Shahareij; it is termed 'the Path of the Prayer Niches' as there are numerous prayer niches along its route. This path runs parallel to and south of the main path, which traverses the mountain from the Valley of St. Elijah to Farsh Sufsafa. While the first path runs through the valleys and is convenient for passage, the Path of the Prayer Niches winds its way along spurs and peaks on the mountain. The view of the holy mountain inspired the monks to built their prayer niches along the way. Thus, the Path of the Prayer Niches and its continuation in the direction of Siqqat Shahareij became sanctified. It seems that the majority of pilgrims ascended the mountain by way of the path climbing directly from the Valley of St. Elijah, while the monks who lived on Jebel Sufsafa preferred the Path of the Prayer Niches.

The central building, located in the southern third of the valley, adjoins the western rock scarp. Part of it is built on the rock and part on the valley bed. This is a large building, whose exact plan is unknown, with *c*. 1 m wide walls; its opening is in the northern wall.

An additional building is Building 401, which apparently served as a chapel. It was located to the north of the valley, on the path to the Valley of St. Elijah. It is a rectangular structure, 4.20 × 4.80 m, containing one well-built room of medium-sized fieldstones, with corners especially well built in the header-and-stretcher technique. The entrance was in the southern wall, through an opening 1.30 m high and 0.80 m wide. In the middle of the eastern wall was a large niche as deep as the wall, as well as a large, flat stone slab, which turned the opening into a niche. Niches of this type are known from Sinai monastic settlements, so that it appears that this building served as a chapel. An additional room, which abutted the southern wall, was apparently a later addition. The building was roofed with clay tiles.

The complex includes two large and four small fenced agricultural plots. The plots are located on different levels and were created artificially by a system of dams retaining the soil deposits. The total agricultural area in the complex covered some two and a half dunams.

Two hermit-cells and two prayer niches were found in and around the complex. The central building possibly served as the dwelling of the monk responsible for the chapel on the summit of Jebel Musa, as this building is the closest to the mountain.

An estimated five to ten monks occupied this complex and its environs.

Site 12: Complex 12
5955015830 UTM

This complex is located on the western side of the stepped path ascending from St. Catherine's Monastery to the Valley of St. Elijah, between St. Stephen's Gate and the Upper Gate. The complex is not visible from the path, as it was hidden beyond the spur, sheltered in a small valley at the confluence of two small tributaries. These drain into a gorge descending to Wadi Ed-Deir near St. Stephen's Gate. A dam created a level plot, which was surrounded by a fence and was flanked by buildings. One building, a large rectangular structure in ruins to its foundations, is located on the southwestern side of the valley; it appears to have had two floors. Among the collapsed ruins was a very large quantity of sherds of North African pottery vessels, as well as numerous pieces of glass panes preserved with the plaster frame. The second building is smaller and is also in a state of extreme ruin, so that its plan is unclear.

On levels lower than this plot were two additional, small agricultural plots created by dams.

The complex contains a total of about three-quarters of a dunam of agricultural plots and was occupied by an estimated three to five monks.

It may be assumed that this was the dwelling of Stephen, the saintly monk whose presence here gave the gate its name.

Site 13: Complex 18
5952515825 UTM

This small complex is located *c*. 500 m west of the Valley of St. Elijah, situated in a steep, narrow ravine which has a series of waterfalls descending to the north, draining the spurs on which the Path of the Prayer Niches runs. A stepped path led up to the site from the central path which traverses the mountain, though most of the former has been badly damaged, making access to this valley very difficult.

The main building was built near the mouth of the ravine on a high rock shelf. The building contains three rooms on a north–south axis. The walls were well preserved, aside from the eastern wall, which collapsed into the wadi. The main entrance was in the south and the openings connecting the rooms were found.

A number of small, partially fenced agricultural plots are situated along the wadi; the total cultivated area was *c*. 650 sq m.

An estimated two to four monks inhabited the complex.

Site 14: Complex 83
5953015835 UTM 1,920 asl

This is a small valley located between the Valley of St. Elijah and the El-Loza Valley. A square building located in the middle of the valley, measuring 8 × 9 m, was built of very large fieldstones, some more than 1 m long and 0.70 m wide. The walls are *c.* 1 m thick, and the building is surrounded by a retaining wall *c.* 1.40 m thick. Its entrance is in the southern wall. From the building is a magnificent view of Jebel Musa. Without excavation, it is impossible to determine whether there was an inner niche or chapel. The building's impressive dimensions and view of the holy mountain make it probable that this indeed was a chapel.

An orchard covering about half a dunam surrounds the building.

On the eastern side of the valley, above a 1.5 m high terrace, a flight of steps leads to a small alcove which possibly was a hermit's cell.

Adjacent to the western cliff of the valley is an additional building, measuring 3.5 × 5 m, with two rooms. Three of the structure's walls were built, while the cliff composed the fourth. Four equidistant, square niches, measuring 0.10 × 0.10 m and 0.05 m deep, anchored the ceiling beams in the rock. About half a meter above the line of the beams, plaster was found on the rock, indicating that this was the thickness of the beaten-earth roof. The building was covered with white plaster. This structure apparently served as the dwelling of a monk and his disciple.

Near this building was an additional ravine with a dam creating an agricultural plot covering only 150 sq m. Another agricultural plot above this was only 42 sq m. A small, built hermit's cell was found at the end of this plot (Site 87).

An estimated six monks inhabited this complex.

Site 15: Wadi Shreij
5936515900 UTM 1,750 m asl

Wadi Shreij is located to the southwest of Jebel Sufsafa and contains one of the paths ascending from the Er-Raḥa Plain to the mountain. Though this wadi is on the periphery of the mountain, it was decided to include the remains with those discovered in the valleys of the mountain.

Two Byzantine complexes were found in the upper part of the wadi. The uppermost complex was composed of a large building (covered by a medieval building which precludes reconstruction of its plan) and an adjacent fenced orchard covering *c.* 1,800 sq m. A 200 m long conduit leads to the orchard.

The lower complex includes a large building, two hermit-cells in small rock shelters, and an orchard covering *c.* 1,550 sq m. A conduit leads water from a spring flowing on a higher level into this orchard.

Additional building remains and orchards were found in the wadi, but the medieval remains and Bedouin construction make it difficult to survey them.

Remains Outside the Complexes

In addition to the remains described above belonging to the various complexes, other remains uncovered by the survey on the mountain and its slopes include conduits, paths, dams and small agricultural plots. These are not included in the present report.

The estimated total area covered by the small agricultural plots outside the complexes, located throughout the mountain and its slopes, is *c.* 7 dunams.

An estimated 20 monks inhabited the mountain in the areas not described in this study.

Hermit-Cells

A total of 23 alcoves certainly used as hermit-cells were surveyed on the mountain, as well as two which were probably not inhabited by monks; three recluse units were composed of one room each. Most of the cells were located under boulders or carved in the granite; each cell had at least one built wall. Some were large and spacious, with room enough to stand upright, and windows and interior shelves for storage. Other cells are smaller and too low to allow for more than lying down or sitting. Most of the cells contain crosses of various sizes, shapes and colors, painted and incised. It appears that each monk chose the cell most suited to his concept of asceticism. One room was the more common hermit-cell on the mountain, as opposed to the two-room cells found in the monastic communities outside Sinai (Hirschfeld 1992: 176–190).

Obviously, there had been additional hermit-cells, which the survey did not discover or that had been destroyed over time, such as cells built of a combination of mudbrick and wood.

Another common mode of occupation was the two- to four-room building, with the more popular two-room building probably serving as the dwelling of a teacher and his disciple.

Prayer Niches

Fourteen prayer niches were discovered on the mountain (Finkelstein 1981: 81–91; 1985: 56), all facing east toward Mt. Sinai. They are semicircular, triangular or rectangular. One is composed of three adjoining niches. Only one person could pray in each niche, as the average diameter was *c.* 0.90 m and the height was *c.* 0.60 m.

Twelve of the niches are located along the Path of the Prayer Niches, a hallowed path which traverses the mountain and affords a series of views which inspired passersby to prayer.

Byzantine pottery collected in and near several niches dates them in general to this period, though more precise dating is difficult. It can be gathered from Egeria's account of her first view of the mountain of God that she worshipped in such a niche as early as the fourth century (Wilkinson 1971: 91); this may also be inferred from her description of the holy sites on Mt. Horeb (Wilkinson 1971: 94–95).

One of the niches is located near the central building in Farsh El-Qasr. Obviously, the niche was earlier than the building, as the latter was built on top of it. This indicates that the niche was erected at some relatively early stage of the monastic settlement on the mountain.

The Path System

A comprehensive system of paths connected all the complexes to the main path which traversed the length of the mountain, as well as to the Path of the Prayer Niches. Many of the paths have steps and high retaining walls. Most are narrow and allow for the passage of only one person at a time.

The few paths which ascend the mountain will be described clockwise, beginning with Sheikh Harun (Finkelstein 1985: 56).

Siqqat Shoᶜeib

This path ascends from Sheikh Harun to Farsh Shoᶜeib via a steep ravine full of boulders. Only few built remains were found along the path. At the bottom of the path, near Wadi Ed-Deir, are remains of several Byzantine structures. This path joins the Path of the Prayer Niches, which traverses the length of Jebel Sufsafa and ascends to Nabi Musa. It appears that this was a hallowed path, perhaps the most important one used by pilgrims for their ascent to Mt. Sinai.

Siqqat Armeziya

This is a steep, stepped path ascending from St. Catherine's Monastery directly south to the Valley of St. John. Several segments of steps and retaining walls have been preserved along the path.

Siqqat Sidna Musa

This path is also called the 'Path of Steps', ascending from St. Catherine's Monastery to the Chapel of St. Elijah. The path passes the Chapel of the Virgin, which Economos encountered, as well as St. Stephen's Gate and the Upper Gate. This appears to have been the main path to the mountain during the Byzantine period; it consists of some 3,000 steps. The Byzantine construction was mostly of fieldstones, some of which were very large and weighed as much as a ton or more. It is obvious that great effort and planning were invested in the building of this path. During later periods, mainly the Middle Ages and the present century, the path was repaired, so that it is in relatively good condition.

At about one-third of the way up, there is a spring called Maᶜin El-Jebel, from which there are remains of a conduit which led water to the Sinai Monastery during the Byzantine period.

The two arched gates appear to have been built in the Byzantine period. Both bear Greek inscriptions; one is undecipherable, while the other, on St. Stephen's Gate, says: Υπερ αθτηριαζ του αββα Ιθαν[ν]ου του ηγουμενου και, 'for the salvation of Father John, the monastery abbot' (Forsyth and Weitzmann 1970: 257, 263; 1970: 19). This possibly refers to John Climacus (Forsyth and Weitzmann 1970: 19). The monks believed that St. Stephen preached to the pilgrims to purify themselves at the foot of this gate, prior to their arrival at the holy mountain (Tsafrir 1993: 315–333).

This path was widely described in the accounts of travellers from the previous century (e.g. Robinson 1841 I: 102).

The Path from Deir El-Arbaᶜin to the Valley of St. Elijah

Steps and retaining walls dating to the Byzantine period are visible along this path. The path was repaired in the Middle Ages and as recently as the 1930s by the monk Musi, who lived in Deir El-Arbaᶜin.

The Path from Deir El-Arbaᶜin to the Valley of Panteleimon

Many paved segments and steps were found along this path. The path splits at its upper part, with one branch

ascending to the Valley of Panteleimon, and the other to Farsh El-Qasr.

The Path Ascending from Wadi Shreij

This path originates in the Er-Rabba Plain and climbs moderately up Wadi Shreij, finally merging with the path ascending from Deir El-Arbaʿin to Farsh El-Qasr.

Though topographically this was the easiest route to the mountain, it was considered a secondary path; only few foundations of retaining walls and steps have been preserved.

Summary: Monasticism in Mt. Sinai and Mt. Horeb

1. The geographic-historical identification of Mt. Sinai with Jebel Musa and Mt. Horeb with Jebel Sufsafa was accepted; no other sites were proposed by Christian tradition during the Byzantine period.
2. From the fourth century on, Jebel Sufsafa and its environs constituted the largest and most dense monastic center in Sinai.
3. The archaeological remains indicate that colonies of hermit monks composed the main nucleus of monastic activity on the mountain, and apparently no *coenobium* existed at Horeb. The monastic hermit colonies ranged from large (inhabited by 15–20 monks), to small, occupied by only a few monks.
4. The economic base and main livelihood of the Horeb monastic settlements was agriculture. However, considering the number of monks on the mountain, the need to oversee the holy sites and provide for the needs of increasing numbers of pilgrims, the average plot size cultivated by each monk was small.
5. A total of 14 complexes was surveyed on the mountain; on the average, each monk cultivated a 258 sq m plot (Table 3).
6. The historical sources and archaeological remains do not help to identify any of the holy sites other than those related to Moses and Elijah. The identification and sanctification of other sites, related to Christian saints and Mary, apparently took place after the Byzantine period.
7. Each complex had at least one permanent water source. Finkelstein's opinion that the water was collected behind solid dams is rejected. It appears that the most common method was digging wells into the arcosic soil, as exemplified in the three wells which exist on the mountain to this day (in the Valley of St. Elijah, Farsh El-Loza and Jebel Musa). Obviously, water cannot be collected in the arcosic soil without the use of dams; they would also have caused both the deposit of soil and the pooling of water on such soil and in rock crevices.

Many water-jug sherds (see Calderon, this volume) were collected on the mountain, indicating that the

Table 3. Size and Structure of the Sites

Site	Size of Agricultural Area (sq m)	No. of Prayer Buildings	No. of Large Dwellings	No. of Two-Room Dwellings	No. of Hermit-Cells and One-Room Buildings	Estimated Number of Monks
St. Elijah's Valley	5,000	+		3	5	15
Complex 210	400	?				3
Complex 220	1,450	+	1		5	7
Complex 230	280	–	1			1
Complex 240	250	?			1	3
Valley of St. John	2,700	+ +	2	1	5	15
Complex 70	1,600	+			1	6
Complex 100	8,000	+	2	3	6	20
Complex 320	3,500	?			1	6
Complex 290	2,500	?	1		2	7
Complex 12	750	?		2		4
Complex 18	650	–	1			3
Complex Site 83	700	?		1	2	6
Jebel Musa		1			1	1
Small Areas	7,000					20
Total	29,630	7–13	8–14	10	29	117

water level in the wells was not deep, and water could be drawn with jars.

8. The results of the survey indicate that nearly 120 monks could inhabit the mountain. This population apparently reflects the peak of settlement on the mountain in the sixth century. It may be assumed that throughout the entire period an average of 100 monks occupied the mountain.

Monastic Settlements of Jebel Ed-Deir

Jebel Ed-Deir (Arabic 'the Mountain of the Monastery') is located to the north of the mountainous complex of Jebel Musa and Sufsafa, across Wadi Ed-Deir. Jebel Ed-Deir is known by other names, such as Jebel Magafa (Arabic 'across from'), as it is opposite St. Catherine's Monastery (though lately the name has been used to refer only to the Epistem and Galaktion Chapel – see below – and not to the entire mountain), and Jebel Es-Selib, after the cross dominating one of the peaks. (Tradition claims a ray of sun pierces the cross one day a year, penetrating through the small window of the Burning Bush Chapel in St. Catherine's Monastery – Wilson and Palmer 1869: 295.) According to the *The Life of St. Galaktion* (*PG* 116: 101–102), the mountain was named *Puplius* (πουπλιος) by Epistem and Galaktion, who went into seclusion there.

The Jebel Ed-Deir monastic settlements may be divided into two geographical groups: (1) monastic settlements on the southern slopes of the mountain near the Sinai Monastery; (2) monastic complexes in the valleys of Jebel Ed-Deir.

Monastic Settlements near the Sinai Monastery

Site 16: The Western Monastery
5952015990 UTM 1,570 m asl

The western monastery is located *c.* 100 m south of the main path to St. Catherine's Monastery, and 750 m from the monastery itself. The complex is situated on a steep slope descending from Jebel Ed-Deir to Wadi Ed-Deir, and contains a central building with an adjoining orchard, three hermit-cells under boulders and an additional orchard some 50 m above the central building.

The Central Building
The building measures 11 m from east to west and is 10 m wide. It is built of large fieldstones; the walls are preserved to an average height of *c.* 2 m. Two large boulders are incorporated in the southeastern corner and the eastern wall. The interior plan is unknown, though the amount of collapsed debris indicates that there had been a second floor built of mudbricks.

The Orchard
The orchard is square, measuring *c.* 30 m long from east to west and *c.* 25 m wide from north to south. Due to its location in the flow path of a small tributary, which descends steeply from the mountain, the walls surrounding it are thick and sturdy. The orchard is located on a steep slope and is composed of four terraced agricultural plots, with an average of 2 m between the steps. An abundant amount of soil was brought from the vicinity to create the orchard. The central building was built in the northwestern corner of the orchard, so that both elements may be viewed as part of a single complex.

Hermit-Cells
Three hermit-cells were constructed under boulders, and each has one built wall. Two cells are located under the boulders incorporated in the eastern wall of the central building. The third cell is built several meters to the north of the central building.

The Upper Orchard
This orchard, covering only *c.* 180 m, is located some 50 m above the complex, in the same flow path.

Summary and Conclusions
Pending excavation, it is impossible to verify the inner plan of the central building and to determine whether it was a chapel; nor do we know the location of its entrance or the function of its rooms. The complex is defined as monastic based on the three hermit-cells. An estimated five to six monks inhabited this monastery.

Due to its proximity to the Sinai Monastery, this complex was possibly a branch of the main monastery.

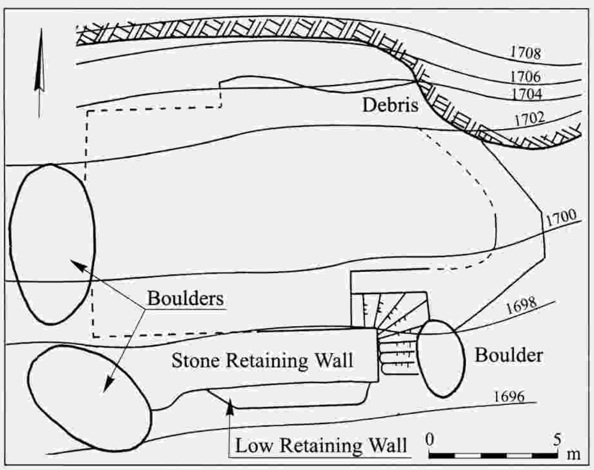
Site 17: The Boulder Building
5960515940 UTM 1,700 m asl

A rectangular building is located on the path joining St. Catherine's Monastery with the Magafa Chapel (see

below); it is situated on the northern side of the ravine along which the path runs. The northern side of the building adjoined the cliff, while its southern part is supported by a high retaining wall, more than 2 m thick, with an additional retaining wall at its base. Almost the entire southern wall was preserved. The western wall is destroyed and its plan cannot be reconstructed. The eastern wall is rounded and most likely contained a prayer niche, so that it seems the building had been a church. Three large boulders were incorporated in the building (Plan 11).

The entrance to the building was from the south. Several steps between the southern retaining wall and the large boulder in the southeastern corner have been preserved.

Several small orchards are located in the flow path of the ravine to the south of the building; these are presently incorporated in an orchard established by a Greek monk, Musi, in 1991.



Plan 11. Jebel Ed-Deir – the boulder building.

Site 18: Magafa Chapel (Epistem and Galaktion)
5963015950 UTM 1,735 m asl

Local tradition identifies this site with the male monastery built by Galaktion in Sinai in the third century CE (*Symeonis Logothetæ Metaphrastæ, Vita Galaktionis: PG* 116: 93–108). After moving the bones of Galaktion and Epistem to Sinai, a chapel was established at the site. It was subsequently repaired, probably in the Middle Ages, and again by the monk Metasius who went into seclusion there from 1961 to 1963 (Meshel 1976: 243 [Hebrew]). Recently, the monk Adrianos, who lived at the site from 1978 to 1992, also repaired the chapel. In the mid-1980s, a cell identified as Galaktion's was 'revealed' above the present chapel.

The Archaeological Remains

The latter structures obstruct the reconstruction of the plan of the earliest building and its unequivocal identification as a chapel. It is certain that the later edifices were erected above the remains of a Byzantine building. Nearby, in and near the flow path, are the remains of agricultural plots covering *c.* 1,700 sq m. A spring flowing from a small cave is located above the plots.

Two hermit-cells are located in the granite rock shelters near the monastery; one was recently repaired ('Galaktion's cell', see above).

Monastic Settlements atop Jebel Ed-Deir

Site 19: Monastic Settlements in Jebel Ed-Deir
5962516025 UTM 1,970 m asl

The monastic complex located at the mountain's summit is spread over an area *c.* 1 km long and *c.* 300 m wide. It includes a central building containing two chapels (Building A), four additional buildings (Buildings B, C, D, E), hermit-cells, agricultural plots, dams and a spring (Plan 12).

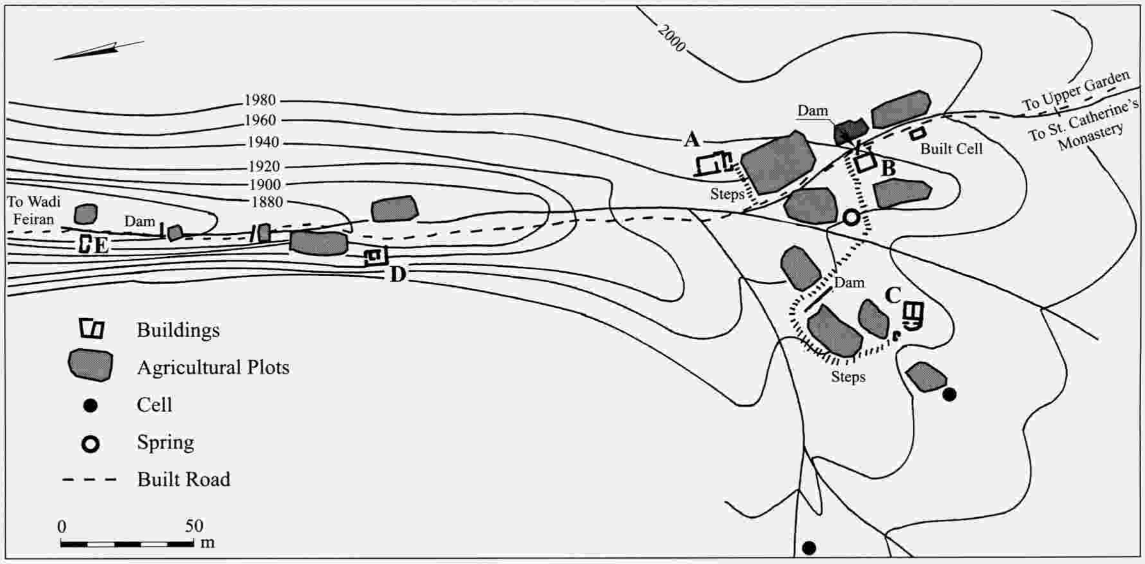
The complex is situated in the drainage basin of the wadi flowing from south to north, draining the summit of Jebel Ed-Deir to Wadi Ghariba, and from there to Wadi Esh-Sheikh and Feiran.

A built path leads to the complex from St. Catherine's Monastery via the Magafa Chapel. The present survey was the first to discover this complex; N. Beaux and R. Boutros (1998: 139–143) re-visited this complex.

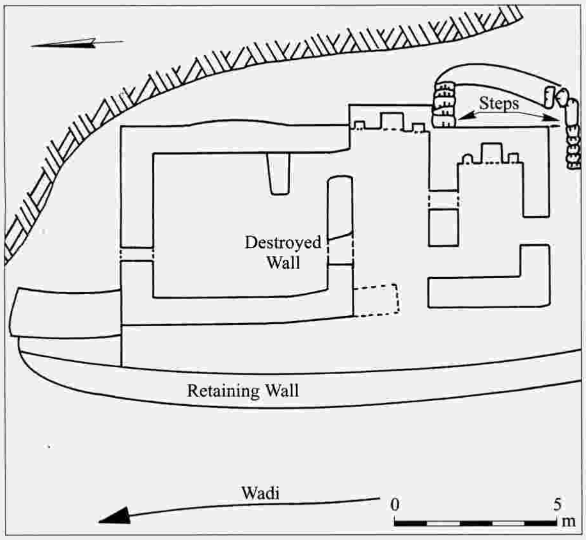
The Chapel Building (A)

The Chapel Building, the central structure at the site, is located on the eastern side of the ravine. The building is constructed of large fieldstones, and includes two chapels and one large room. It measures 14 m long and *c.* 9 m wide (Plan 13).

The eastern side is close to the rock scarp, while the western side is supported by a massive retaining wall, protected at its base by an additional, low retaining wall near the flow path of the ravine. A long, narrow porch is built between the western retaining wall and the western walls of the rooms (Plan 14).



Plan 12. Jebel Ed-Deir – the upper monastery.



Plan 13. Jebel Ed-Deir – the upper monastery, Building A.

Both chapels face east and contain a central niche, which begins *c.* 1 m above the floor, flanked by two additional, smaller niches.

Pending excavation, it is impossible to determine whether the chapel had contained altars, chancel screens, a baptismal font, or any other such elements.

The southern chapel was entered from the south, though it also had an additional entrance in its northern wall, which joined the two chapels. The main entrance to the northern chapel was from the west, though it too had additional entrances, one leading to the southern chapel and two (one tentative) to the room to its north.

The northern room measured 4.50 × 5.80 m, and was possibly further subdivided. Aside from the entrances to the room from the northern chapel, the room had a window in its northern wall.

The main entrance to the building was from the south, where it is accessed by a paved path. A flight of steps, which appears to have led to the roof, was built around the southeastern corner of the southern chapel. The small amount of collapsed debris indicates that there had not been a second floor.

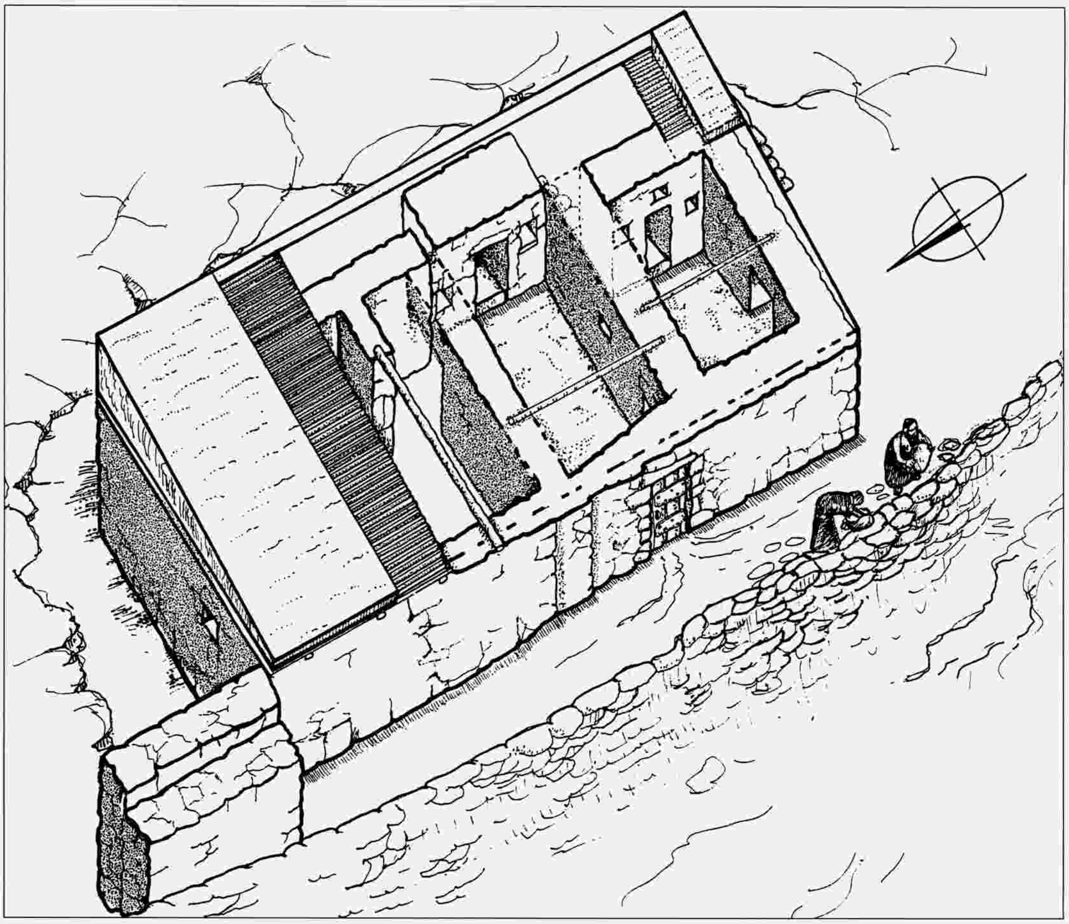
The eastern and western walls of the northern chapel abut the walls of the southern chapel and the northern room. Thus, it appears that the latter two units were initially constructed as unconnected structures, and only at a later stage was the northern chapel built in the interim.

Building B

Building B, measuring 7 × 8 m, is built on a rock scarp some 80 m south of Building A. The outer walls were preserved to a considerable height, with niches and windows. The inner plan of the building, however, is unclear; it seems that this had been a two-room structure, which was used by the monks for seclusion.

Building C

This building contained two rooms, measuring internally *c.* 2.50 × 3.20 m, and an anteroom and rounded porch on the west. Two entrances led from the anteroom to each of the two rooms. Near the eastern wall was a



Plan 14. Jebel Ed-Deir – the upper monastery, isometric reconstruction of Building A.

small installation, with a pit, measuring 0.50 × 0.40 m and 0.30 m deep, most likely meant to contain a storage jar (Plan 15).

Some 4 m north of the building is a small, three-walled structure, with one of its sides curving inward. The inner measurements are 1.60 × 0.90 m, with walls preserved to a height of 1.60 m. The corbelled roof was preserved at its base. In the middle of this small structure is a square pit measuring 0.30 × 0.30 m and 0.70 m deep.

A stepped path joins this building, via Building B, with the chapels (Building A). It seems that the abbot of the monastery and his disciple used this building.

Building D

5962516045 UTM 1,920 m asl

This building is located about 200 m north of the chapel building, down the valley, and west of the ravine's flow path.

The building is constructed on a steep cliff, with its western side built directly on the rock and its eastern side supported by a retaining wall *c.* 10 m high and *c.* 1.5 m wide.

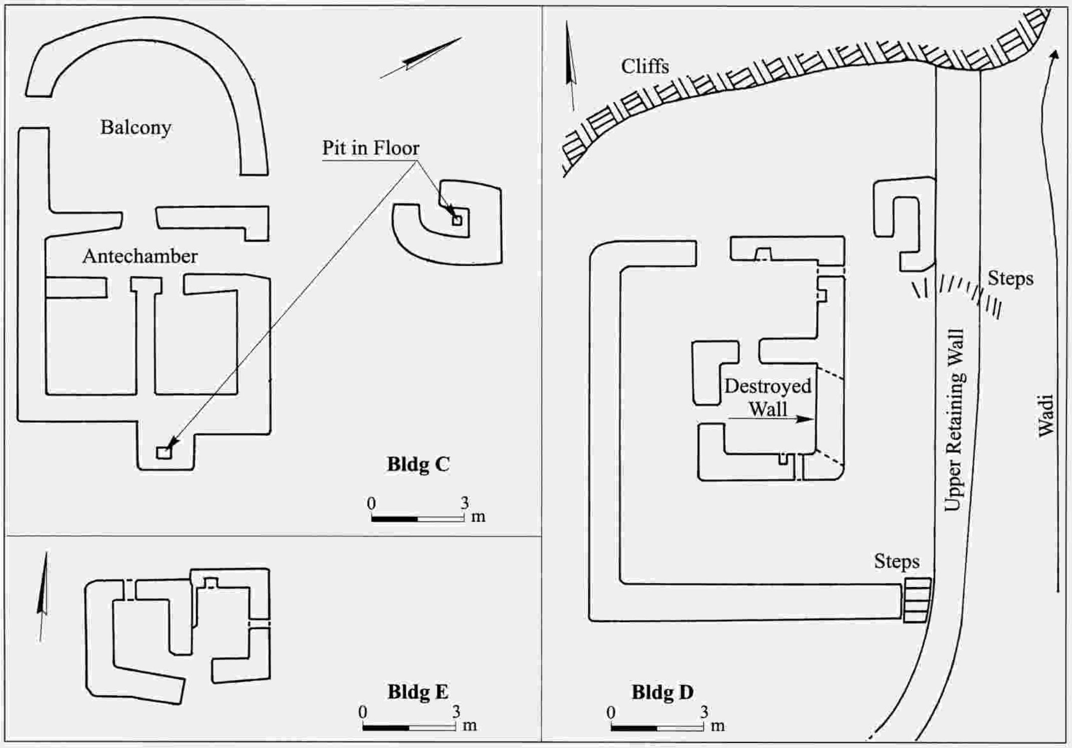
This building also contained two rooms – an anteroom and a porch; like Building C, it too had a small fence nearby. The main entrance was from the south, between the retaining wall and the southern wall of the anteroom.

This building was the dwelling of two monks, while the adjacent structure may have served as the cell of an additional hermit.

Building E

5962516070 UTM 1,860 m asl

A built, stepped path descends in a steep gorge from Building D to Building E, located some 200 m to the north of the former. The gorge is very narrow and is



Plan 15. Jebel Ed-Deir – the upper monastery, Buildings C, D and E.

full of boulders. Two dams are located in the ravine between the two buildings, with an agricultural plot covering *c.* 30 sq m behind each.

Building E adjoins the western side of the flow path of the ravine. The building contains two well-preserved rooms; the western room was built first, with the eastern room added at a later stage. Both rooms have a common entrance from the south.

It seems that this building was the dwelling of two monks.

Hermit-Cells

Three hermit-cells were discovered in this complex. One is built of stone and is *c.* 40 m south-southeast of Building B. It consists of a small rectangular room, 2.40 m long and merely 1.50 m wide. The room is adjacent to the flow path, near two agricultural plots.

Two additional cells are built under boulders; one is an alcove created by a boulder leaning against the rock scarp. This cell is 4.50 m long and 2.20 m wide at its base. Its maximum height is 3.40 m. The cell's facade was built of stone, with an entrance *c.* 1 m high and 0.40 m wide. Five steps led up to this cell, which is some 50 m from Building C.

The third cell was found *c.* 40 m northwest of the latter, and also had a built wall.

Agricultural Plots

Seventeen agricultural plots of various sizes were found in the complex, most located in the center of the site and in the wadi, which drains it to the north. One plot, (map ref. 5962516000 UTM 2,000 m asl), is near the summit, in an area draining southward to Wadi Ed-Deir. The plot is in a valley, which drains into two separate ravines: one descends to the Magafa Chapel and contains the path leading to the site. The second ravine, with many waterfalls, descends very steeply directly to St. Catherine's Monastery. Both ravines have dams built at the inlet of the valley, creating a levelled surface covering *c.* 2 dunams. The valley, located *c.* 500 m from the Chapel Building, contains no architectural remains or hermit-cells.

The remaining agricultural plots are found on both sides of the wadi's flow path, along which the complex is built. Most of the plots are watered from the flow path and the drainage from nearby rock surfaces, though two plots near the Chapel Building are irrigated directly from the spring above them.

The plots cover an area of *c*. 6 dunams; the total cultivated area in the complex was *c*. 8 dunams.

Summary and Conclusions

A. The Jebel Ed-Deir monastery represents the most prevalent monastery type in South Sinai, that of hermits concentrated around a common center, which contains churches and a communal hall (perhaps a dining room). The inhabitants obtained their livelihood from orchard cultivation, growing mainly fruits and some vegetables.

B. The arrangement of a teacher and his disciple living in close proximity is common in this type of monastery.

C. It appears that there were some 12 to 20 monks living in this complex. Eight inhabited Buildings B, C, D and E; three monks occupied the hermit-cells, while the rest used cells which have not been preserved, as well as the room adjacent to the church structure and additional small rooms near Buildings C and D.

D. The finds include mainly body sherds of storage vessels and a few glass fragments, which may be dated exclusively to the Byzantine period; a more precise sequence of occupation at the site is impossible to determine.

Jebel Muneijat Musa
5966515840 UTM 1,854 m asl

Jebel Muneijat Musa is situated at the eastern end of Wadi Ed-Deir. Jebel Ed-Deir adjoins it on the north and Jebel Musa on the southwest. The mountain is composed of volcanic rock, and thus is different from most of the red granite massifs in the region. The mountain affords a spectacular view of St. Catherine's Monastery, Mt. Sinai and the Er-Raḥa Plain.

Present tradition identifies this mountain as the site of the first encounter of Moses and Jethro. Ritter (1848: 58) suggests that this is Mt. Sinai, as Moses went up the mountain every day, which would have been a very arduous undertaking on Jebel Musa. Palmer (1871: 19) writes that the source of the name *muneijah* is the Arabic word for 'conversation'. Based on Arabic inscriptions, he maintains that the earlier name of Jebel Musa was Muneijah. (Nowadays the monks of St. Catherine's Monastery call the chapel on top of the mountain 'Chapel of St. Theodore of Tyre and St. Theodore the Recruit'.)

No remains of the Byzantine period were found on the mountain.

Site 20: The Sinai Monastery: The Site of the Burning Bush (St. Catherine's Monastery)
5955515940 UTM 1,580 m asl

According to Christian tradition, the site of the Sinai Monastery is where Moses, the first prophet, saw the angel of God in the Burning Bush (Ex 3: 2, 3), and spoke with God (Ex 3: 3, 4). It was also identified as the site of the well by which Moses rescued the daughters of Jethro from the shepherds (Ex 2: 17; The Piacenza Pilgrim, 37). This monastery is the largest and most important center of Sinaitic monasticism since its inception until the present day.

The importance of the Sinai Monastery stems not only from the sanctity of the Burning Bush, but also from its very location on Mt. Sinai. While there were small, isolated monastic communities on Mt. Horeb, these were detached from an organized administration. On the other hand, the Sinai Monastery, situated in an easily accessed valley at the foot of the mountain, served as the religious and administrative center not only of Mt. Sinai and its immediate vicinity, but for the entire Sinai Heights as well. Its importance was enhanced when, following the destruction of the Episcopal town of Pharan, the Bishop's See was transferred to the monastery. Evidence of this move is found in the proceedings of the Eighth Ecumenical Council at Constantinopole in the year 869 CE, signed by Constantine, 'Bishop of Sinai' (Mansi 1758–1798 XVI: 194).

Numerous pilgrims visited the monastery from its erection until today (Labib 1961), and it has served as the subject of intensive research. It is not the intention of the present study to innovate or add to the already existing body of research. Our goal is to assemble and summarize what is known about the monastery's history and structure, as well as its literary and artistic treasures, while referring the reader to pertinent literature.

The Historical Sources

Egeria: The pilgrim Egeria, who visited Sinai in the early 80s of the fourth century CE, was the first to describe the site. She recounts that this holy site contained a church, in front of which the Burning Bush grows in a lovely, well-watered garden, as well as many monks' cells (*CCSL* 175: 42–43 [Chap. 4, lines 6–8]). Egeria spent one night there, attesting to the existence of a pilgrim' hostel at the site as early as the fourth century. Egeria does not mention a tower or other fortification in her description.

Nilus: In the course of his description of the slaughter of the monks in Chapter IV of the *Narrationes* (*diegemata*), Nilus relates that there was a church at the site of the Burning Bush (*PG* 79: 628A) occupied by holy monks, with nearby food storehouses.

Ammonius: Ammonius relates how, during the slaughter of the Sinai monks by the Saracens (Combefis 1660: 91; Lewis 1912: 4), several monks fled to a fortified refuge (*pyrgos*) in the vicinity. Though no mention is made of the Burning Bush, the lack of any other known fortified site nearby makes it likely that he was referring to the fortified tower in the Sinai Monastery before the reign of Justinian, described by Eutychius (see below). Mayerson (1980: 139) refutes the connection between the tower described by Eutychius and that mentioned by Ammonius.

In his description of the life of the monks near Mt. Sinai, Ammonius writes that they dwell in cells and pray at the church (Lewis 1912: 3–4); there is no mention of a fortification. Ammonius adds that the abbot of the Mt. Sinai monks was called Doulas, and his title was προεστθζ – synonymous with abbot, the more accepted title in Sinai.

John Bishop of Nikiu: Chap. 89, 33, relates how the barbarians slaughtered the monks at Raitho (Charles 1916: 125). As a result of this, the emperor Anastasius built a series of strongholds to protect the monks. This source makes no reference to Mt. Sinai or to the Burning Bush, though it specifically states that aside from Raitho, Anastasius built additional forts to protect the monks. It is possible that a fortified tower, constructed prior to the Justinian fortress, was the one described by Eutychius, erected during the reign of Emperor Anastasius I (491–518 CE) as part of this endeavor.

Procopius: Procopius is the first historical source to describe Justinian's construction in Sinai (*De Aed.* [*Buildings*] V viii). While he fails to mention the erection of a monastery, he writes of the construction of a church for the monks on the slopes of Mt. Sinai (above, 3.3.1), and of a formidable fortress at the base of the mountain:

> ...ἐς δὲ τοῦ ὄρουζ τὸν πρόποδα καὶ φρούριον ἐχυρώτατον ὁ βασιλεὺς οὗτος ᾠκοδομήσατο, φυλακτήριόν τε στρατιωτῶν ἀξιολογώτατον κατεστήσατο, ὡς μὴ ἐνθένδε Σαρακηνοὶ βάρβαροι ἔχοιεν ἅτε τῆς χώρας ἐρήμου οὔσης, ᾗπέρ μοι εἴρηται, ἐσβάλλειν ὥς λαθραιότατα ἐς τὰ ἐπὶ Παλαιστίνης χωρία.
>
> And at the base of the mountain, this Emperor (Justinian) built a very strong fortress and established there a considerable garrison of troops, in order that the barbarian Saracens might not be able from that region, which, as I have said, is uninhabited, to make inroads with complete secrecy into the lands of Palestine proper (*De Aed.* [*Buildings*] V viii).

Before this, he writes of the erection of the church dedicated to the Theotokos, though, in our opinion, there is no connection between this church built on Mt. Sinai (see above, discussion of Mt. Sinai) and the monastery built in the wadi. Forsyth has previously noted that Procopius differentiated between the church and the fortress (Forsyth 1968: 5), maintaining that Procopius erred, as both the church in St. Catherine's Monastery (according to an inscription on the roof beams, which mentions Justinian, see below) and the walls of the monastery date to the reign of Justinian.

Mayerson, too, contends that Procopius clearly separated the church of the Theotokos from the fortress, which was meant to house soldiers (Mayerson 1978: 36). However, it is his opinion that this represents one of Procopius' mistakes, and following Forsyth (Forsyth 1968: 5), he identifies the church in St. Catherine's Monastery with that of the Theotokos described by Procopius.

Procopius makes no reference to the site of the Burning Bush, nor to the building of a monastery.

Evagrius: Evagrius' biography of Gregory, the Patriarch of Antioch, written in the sixth century CE (*HE* VI, 5), describes Gregory's life as a monk during the reign of Justinian II. He writes of Gregory's appointment as head of a Byzantine monastery (apparently in Syria) at a young age, to be subsequently sent to the Sinai Monastery by the order of Justin. During his sojourn in Sinai, he met with great hardships, which he successfully overcame. His ability to remain composed during the Arab siege was rewarded in 570 CE with his appointment as archbishop (Chitty 1966: 170).

This is the only historical source which describes the Arab siege of the monks in Mt. Sinai during the second half of the sixth century. However, this is considered a reliable reference, attesting that the Sinai Monastery was fortified and able to withstand siege.

The Piacenza Pilgrim: The Piacenza Pilgrim thus describes the area of the monastery:

> ...They (the monks) took us with them into the valley between Horeb and Sinai. At the foot of this moun-

tain is the spring where Moses saw the miracle of the Burning Bush and at which he was watering the sheep. This spring is within the monastery walls, and the walls round the monastery are strong. It has three abbots who are learned in languages – Latin, Greek, Syriac, Egyptian and Bessan (Bessic) – and there are many in that place who can translate from one foreign language. In that place are the monks' graves [in another manuscript: "dwellings"] (37 = v184).

Daniel of Raitho: In his biography of John Climacus, Daniel describes the day John was appointed abbot of the Sinai Monastery [for an identical description, see *Narrative* 7 of Anastasius the Monk).

> On that day, some 600 visitors came to the monastery, and were witness to a miracle while they were eating. John observed a man with short hair, dressed in a white tunic like the Hebrews, acting like the leader by giving orders to the cooks, waiters, wine pourers and others. When the pilgrims left and the servants sat at the table, they looked for the man who had delegated the orders, but he was nowhere to be seen. Then John, the servant of God, said: 'Stop looking! Our lord Moses (the holy prophet and law giver) did nothing extraordinary in his serving you here in his own surroundings!' (*PG* 88: 608).

This story, with reservation, indicates that at the end of the sixth century, there was a large dining room in the Sinai Monastery, which served both monks and pilgrims.

Anastasius the Monk: Anastasius' writings describe the lives of the monks in Sinai during the first half of the seventh century CE; several of the stories pertain to the Sinai Monastery. *Narrative* 4 indicates that there was a central burial place near the monastery (for primary burial and bone collecting). *Narratives* 33 and 39 and the appendix show that there was a pilgrims' hostel [ξενοδουειον] at the Sinai Monastery itself, or nearby. Pope Gregory I established this hostel for the Sinai monks (*Epistula* xi–1), and attests to the contribution of beds and other equipment for this hostel sent on September 1, 600 CE by Pope to John, the abbot of the Sinai Monastery (*PL* 77: 1117–1120).

Epiphanius the Monk: Epiphanius came to Mt. Sinai from Raitho at the end of the seventh century CE (Wilkinson 1977: 198–199), or during the eighth century CE (Donner 1971: 42–91). Epiphanius calls it the monastery of the Burning Bush (Epiphanius VII 8–10). Near the Bush is the stone on which Moses stood when he saw the bush was not consumed by fire:

> ...καὶ πλησίον αὐτοῦ ἔστι τὸ μοναστήριον ὁ ἅγι(σζ) βᾶτσζ. καὶ ὁ λίθοζ ἔνθα ἔστη Μωυσῆζ θεθρ(ῶν) τὴν βᾶτσν καιομένην, καὶ μὴ καταφλεημομένην (Donner 1971: 75).

This description indicates that the holy relict at that time was the stone on which Moses stood and not the Burning Bush, which became the holy site.

Eutychius (*Saʿid Ibn-Batriq*): Eutychius (*PG* 111: 1071–1072) provides the most detailed, and apparently the most exact, historical record of the construction of the Sinai Monastery. Though he wrote in the tenth century CE, he apparently had at his disposal several documents of varying accuracy from which he gleaned his data. Following is a relevant passage:

> When the monks of Mt. Sinai heard of the receptive disposition of Emperor Justinian and that he delighted in building churches and monastic settlements, they came to him and complained that the Ismaelite Arabs injured them by devouring their provisions, and destroying their places (of habitation). Entering their cells they would gulp down the Eucharist. When the Emperor asked them what they wanted, they said: 'Oh king, that you build us a monastery in which we may be protected.' [Before that time there was no monastery in which the monks could congregate, but they were scattered in the mountains and wadis around the Burning Bush, from which God spoke to Moses. Above the Bush they only had a large tower, which is still standing to this day, and within it is a church dedicated to St. Mary, and the monks would flee to this tower to protect themselves whenever anyone whom they feared approached.] The Emperor consequently sent a legate with full authority and with written instructions to the prefect of Egypt that he supply him (the legate) with as much money as needed, and that he provide men and provisions from Egypt. The legate was also ordered to build a church at Clysma, and a monastery at Raʿiya; and to build a monastery on Mt. Sinai and to fortify it so that no better could be found in the entire world and to make it so strong that the monks or the monastery would not fear or suffer from any quarter. The legate... found the Bush located in a narrow place between two mountains, and in the same spot he found a tower built near the Bush and some running springs of water near it, and monks scattered about the wadis... Hence he built

> the monastery in this narrow spot, close by the Bush and the famous (biblical) monuments and a supply of water. ... The name of the abbot of the monastery was Doulas (transl. Mayerson 1978: 36–37).

Eutychius is the sole source mentioning the erection of a fortified monastery during the reign of Justinian near *the Bush* and Well of Moses. It seems that he relied on more than one source, and may possibly have been familiar with the description of Procopius; however, his description also reflected the situation which existed during the tenth century CE. His evidence indicates that the monastery was erected near the Bush and contained the fortified tower, which continued to exist at least until the tenth century. The older tower included a church dedicated to Theotokos. It may be inferred that two adjoining fortified sites were built – the monastery and, to its east, slaves' quarters. (He emphasizes that these were called Deir El-ᶜAbd in his day, and that when the slaves converted to Islam in the reign of the Khalif Abd el-Malik Ibn Marwan, 687–705 CE, the monks destroyed their dwellings.)

The Archaeological Remains

As it is not the aim of this study to review the vast body of information concerning St. Catherine's Monastery, we will focus only on remains built prior to the Arab conquest of Sinai, based on the most recent studies.

The basis of this summary is the comprehensive survey conducted by the Universities of Princeton, Michigan and Alexandria with archaeological data published by Forsyth (1964: 82–105; 1968: 1019; Forsyth and Weitzmann 1970), and artistic data by Weitzmann (1964: 341–352; 1964a: 109–127; 1976). Additional information is provided in Dunayevsky's sketches of the walls in 1956 (Tsafrir 1978: 218–229), as well as Demacopoulos' efforts in the aftermath of the fire of 1971 (Demacopoulos 1977–1979: 261–301), and the archaeological work of Grossmann (1988: 543–588).

This study relates to architectural elements dating to the Byzantine period, found in the walls, church, underground vaults around the walls, the base of the mosque, cisterns, and the structure (tower) located near the southwestern corner of the church.

The Walls. The fortified enclosure of the Sinai Monastery is square. The length of the northwestern wall is 74.80 m, the northeastern wall is 87.50 m long, the southeastern wall is 73.50 m and the southwestern wall is 80.50 m (Tsafrir 1978: 228–229). The thickness of the southwestern wall is 2.75 m, while the other walls are narrower, reaching an average thickness of *c.* 2 m. The corner towers jut out slightly; an additional tower was built in the center of the southwestern wall, assumedly with a counterpart in the northwestern wall. In the center of the southeastern wall is a tower whose lower floor contains toilets. The drainage outlets of six of them are clearly visible from outside the wall, while their inner side is totally blocked by later construction.

The fortified enclosure totals an area of *c.* 6,030 sq m (not counting the thickness of the walls). The walls are built of square, nicely-fitted and well-polished granite ashlars laid in straight courses. The average size of each stone is *c.* 0.55 × 0.65 m. A fortified enclosure similar in size and shape is found at Raᶜiya, apparently to be identified with Raitho (see below), influenced more by Syro-Palestinian than Egyptian architectural traditions (Forsyth 1968: 3).

Mayerson (1978: 34) maintains that the wall is narrow in relation to its length and the number of towers in it, thus disproving Procopius' claim of this being "a very strong fortress" meant to protect the province. Grossmann (1988: 544–545) assumes that the wall seen today is only the outer shell which was thickened and reinforced by an entire system of rooms constructed adjacent to the inner face of the wall, in two floors above the foundation. This contention is based on the small windows found topping each other in the walls, which, in his opinion, are the outer windows of these rooms, which were built as casemates in the wall. Grossmann claims that these windows are the key to understanding the interior architecture of the monastery, though his article does not take into account the Israeli scholars' investigations in the monastery, especially Dunayevsky's drawings, which provide details of the very windows which lie at the base of his argument. Tsafrir (1978: 228) raises the possibility that these were embrasures used by the soldiers guarding the site. We abide by Grossmann's suggestion, as the apertures are too deep and narrow to be used for the latter function. The towers, too, were not prominent enough to be utilized for defense purposes, and were thus meant only to reinforce the wall. Thus, it may be surmised that the wall was meant to serve as a passive defense measure at best.

Along the outer face of the wall, there are numerous decorated granite stones, both incised and in relief. Most of the motifs are variations of stylized crosses and stones prepared for inscription. One decoration shows two animals flanking a cross, above which is a *tabula ansata* (Forsyth and Weitzmann 1970: Pls. viii, x, xi; Tsafrir

1978: 223–224). The majority of decorated stones are the frames of small windows.

The Gates. There apparently was one primary gate and one secondary gate hidden nearby. The main gate was located in the center of the northwestern facade, reaching a height of *c.* 3 m and a width of 1.90 m (Tsafrir 1978: 222–224). The gate has monumental granite doorjambs and a lintel in the shape of a flat arch, with two monoliths in the corners and three smaller stones in the center. An additional, round relief arch was built above the flat arch, composed of five granite stones.

Above the gate is a machicolation, with a *tabula ansata* on its facade inscribed in Greek:

> Ἅυτη ἥ πύλη κυρίου, δίκαιοι ἐισελεύσονται αι ἐν αύτῆ 'Ιουστινιανοῦ αὐτοκράτοροζ [το]ῦ φιλοκτίστου (Ševčenko 1966: 262).
>
> This is the gate of the Lord, the righteous shall pass through. Justinian the Autocrator loves building (or loves God) (Ps 118: 20).

To the north of the main gate was a small, underground passage, leading from the enclosure to the monastery's garden, which served as a secret escape tunnel in times of danger.

An additional gate, 'the Archbishop's Gate', is located on the northern side of the northwestern facade. Tsafrir (1978: 224) proposes that this was originally a Byzantine gate due to its similarity to the Byzantine gate at ʿAvdat. Forsyth (1968) does not treat this as an ancient gate. Grossmann (1988: 577) believes this is a later gate, as it does not line up with the underground hall located on the inner side of the gate. At the time of the 1971 fire in the monastery, a segment of the inner wall opposite the gate, as well as nearby structures, was exposed. These finds prove that the gate is not ancient (*HA* 1972: 48 [Hebrew]).

One of the stones of the northern lintel in the upper part of the Archbishop's Gate bears a blurry incision of a haloed figure, carrying a child. It appears that this stone is in secondary use. Tsafrir (1978: 227) proposes that this is the Holy Virgin holding the baby Jesus. Alternatively, it represents Abraham near the altar at the time of the sacrifice of Isaac (Tsafrir 1985: 393 [Hebrew]).

Structures Adjacent to the Walls

On the inner face of the northern, eastern and southern corners of the wall, remains belonging to the Justinian construction can be seen. Since these remains do not appear in Forsyth's preliminary report, we will refer to the publications of Demacopoulos and Grossmann, and the illustrations published by Forsyth and Weitzmann. The remains are described clockwise, starting from the north:

The Northern Corner. Along the western face of the northwestern wall is an underground hall, *c.* 31 m long and *c.* 8.25 m wide. The hall consists of two long rooms divided by pillars and arches built of large ashlars, which supported the roof on vaults. It appears that the hall continued at a 90° angle along the northern face of the northwestern wall. The function of this hall is unclear. It is unknown whether it had external windows, as it is built at a spot where the original wall has not been preserved (Demacopoulos 1977–1979: 261–301; Grossmann 1988: 544–545).

To the northeast of this wall, along the inner wall, narrow rooms were constructed on two floors. The windows of these rooms are visible on the inner face of the wall. The rooms were narrow due to the close proximity of the church to the wall at this spot. There possibly was a multi-levelled gallery here, serving as a horizontal link to the rooms on the upper floor in the eastern corner.

The Eastern Corner. A vaulted hall was erected in the eastern corner, measuring 8.20 × 6.90 m. The entrance to this hall was from its western side, from where there was an additional entrance leading to a room to its south. This room had two external windows in the northeastern wall. Forsyth suggests that this served as the monastery's kitchen in the sixth century CE (Forsyth and Weitzmann 1970: 6).

To the south of this hall is a further row of smaller rooms, with vaulted ceilings, built adjacent and parallel to the wall.

The Southwestern Wall and the Southern Face of the Southeastern Wall. It appears that along these walls, two stories of rooms were constructed (Grossmann 1988: 550–551). These rooms had superimposed windows, embrasure-shaped (narrow in the front and wide in the back). Two small rooms in the wall's towers were also preserved. A chapel was built in the second floor of the central tower.

The Western Corner. A large cistern was built in the western corner (Forsyth and Weitzmann 1970: Pl. XIX: c, d), measuring 7.30 × 5.70 m, with a maximum depth of *c.* 4 m. The cistern's capacity was *c.* 150 m^3. It is not clear whether the cistern was fed from the drainage

overflow of the monastery itself or from the slopes of Jebel Sufsafa, via an underground channel which has yet to be discovered.

Remains of additional underground structures were found adjacent to the cistern.

Summary

We may accept Grossmann's view that most of the dwellings, dining rooms, hostel rooms and storerooms were built as a casemate along the walls. These structures surrounded the entire enclosure. The ground floor was constructed of large ashlars and was incorporated in the wall, forming a casemate wall. The two additional floors were built partially of mudbricks.

The Mosque

Opposite the central entrance to the church's narthex, between the church and the northwestern wall, a mosque was built. It is a rectangular structure, with an anteroom on its long axis on the west and a long room on its east. Both rooms are *c.* 16.80 m long; the width of the structure is *c.* 8.40 m. The building had two floors, with ceiling vaults supported by two pillars in the shape of a cross found in the central hall, and an additional pillar in the center of the anteroom. Forsyth maintains that this had been a pilgrims' hostel (Forsyth 1968: 7), which was transformed into a mosque in the eleventh century. Frescobaldi, who visited the site in the fourteenth century, relates that the mosque was built on the Chapel of St. Basil in the beginning of the twelfth century CE (Frescobaldi, Gucci and Sigoli: 59).

Grossmann examined the mosque in the course of its renovation by the Egyptian Supreme Council of Antiquities in 1986, and confirmed that it was in secondary use as a mosque, rejected Forsyth's suggestion and placed the original structure in the sixth century (Grossmann 1988: 543).

To the north of the mosque, under modern structures and terraces, are additional sixth-century CE underground arches and vaults.

The Early Tower

Parallel and to the south of the mosque, on the southern side of the path leading from the monastery's main entrance to the church, Grossmann describes the base of a square tower, which was not mentioned by Forsyth. This structure was built of medium-sized fieldstones with smaller stones between courses, following the mode of construction accepted in the hermit monastic settlements in Sinai. The structure measures 12 × 12 m, with walls *c.* 1.20 m thick, divided into two spaces; there are two stories in the northern wall. Grossmann (1988: 556–558) maintains that this structure was pre-Justinian, based on the construction technique, and that it served as a fortification due to its thick walls and its two stories. He suggests that the second floor was reached by means of a wooden ladder from the ground floor, a tactic adopted in order to isolate the two floors in times of threat.

Grossman relates this tower to the one described by Ammonius and Eutychius (see above) and thus concludes that it was built in the fourth century.

In our opinion, while it is possible that the tower is earlier than the monastery, the data at hand are insufficient to correlate it with the tower mentioned in the sources. Considering the lack of datable finds, it would be rather far-fetched to rely merely on Ammonius' testimony, which fails to associate the tower with the area of the Burning Bush. As mentioned above, the ground floor contains two long rooms on an east–west axis. If indeed this is the early tower, then one of its rooms, on the ground or upper floors, may have served as a chapel, perhaps that dedicated to Mary as mentioned by Eutychius. The remains of the tower are found under the later chapel dedicated to the Virgin, which possibly represents the preservation of the previous holy tradition.

The Well of Moses

The well, apparently earlier than the construction of the church, is located to the north of the latter and is one of the reasons for the erection of a fortified monastery at this site.

The Church

The Architecture. The monastery's church is a basilica, 37 m long and 20 m wide, composed of a narthex, a nave and two aisles, narrow chapels flanking the aisles, two additional chapels on both sides of the central apse, and the site of the Burning Bush (presently the Chapel of the Bush) to the east of the central apse.

Six columns in each row supported the roof beams which were either common cypress (Liphschitz and Waisel 1973: 165 [Hebrew]), or pine (Ševčenko 1966: 262); sheets of lead top the beams. As pine does not grow in South Sinai whereas cypress does, Liphschitz and Waisel's analysis seems more probable.

Decorations and inscriptions in Greek are incised on the wooden beams of the roof pediment. Two of the inscriptions are especially important, as they provide a chronological framework for the erection of the church.

One, found on the seventh beam, mentions the late empress Theodora (Ševčenko 1966: 262, No. 4). The second inscription, on the eighth beam, was from the days of the emperor Justinian (Ševečenko 1966: 262, No. 5). Thus, it is clear that the church was built between 548 CE, the year Theodora died, and 565 CE, the year Justinian died. The first beam bears an inscription mentioning the builder or the architect of the church, Stephen, son of the deacon Martyrius of Aila (Elat), as well as a supplication to God to protect his children Gregory and Nona: "My Lord God, who is watching this place, save and have mercy on your servant Stephen son of Martyrius, the Deacon and Builder from Aila, and give rest to the souls of his children Gregory and Nona" (Tsafrir 1990: 181 [Hebrew]). A burial inscription found by Clermont-Ganneau at Beersheba was translated: "Here lies the blessed Nona daughter of Stephen of Aila..." (Alt 1921: No. 36). An inscription from Hadabat Ḥajaj mentions, among others, Stephen and Nona (Negev 1977: 32, No. 101), possibly the same people.

The quality of artistic decoration found in the church makes up for the flaws and imperfections of the architectural structure. Tsafrir (1985: 258 [Hebrew]) points out the discrepancy of levels between the southern rock-carved chapels, on a step higher than the church's nave, and the northern chapels, which are lower than the nave. Following Forsyth (1968: 6), he explains that this incongruity is due to the location of the Bush near the wadi, which dictated the place where the church was built. Grossmann (1988: 553–556) raises some problems connected with this:

A. The narthex is not architecturally related to the church, and, in Grossman's opinion, is later. This is evident in the northwestern corner of the church, where the narthex is not integrated into the building; the original entrance to the church was entirely different, with no narthex and with only one entrance to the nave. When the narthex was added, two additional entrances were opened, leading from the new narthex to the aisles. This can be seen in the contrast between the finely built northern entrance and the more careless, smaller southern entrance.

B. The row of chapels flanking the aisles postdates the sixth century. Originally, these were long halls of an unknown function, and only later were inner partition walls with apses added.

C. The chapels flanking the central apse — the northern one dedicated to Jacob, Jesus' brother and the southern to the saints of Sinai – are also later additions, which underwent alterations when the Chapel of the Burning Bush was built. Grossman opposes Forsyth's view that a circular route approached the site of the Burning Bush during the initial stage of the church; he also rejects Forsyth's opinion that the Chapel of the Burning Bush was added in the Middle Ages. He maintains that all the alterations were carried out in the sixth century and completed prior to the Persian conquest (including the construction of the Chapel of the Burning Bush).

The Artistic Remains in the Church. The church's artistic remains are among the most remarkable Byzantine remains in the entire East due to their quality and excellent state of preservation. The wall mosaics, carved wooden doors, lintels, carved pediment beams, columns, chancel screens, and wax paintings on marble depicting the sacrifices of Isaac and of the daughter of Jephthah, as well as additional items, well demonstrate the wealth and grandeur of Byzantine art. The wall mosaics, especially the central scene of the Transfiguration in the apse, surrounded by medallions depicting biblical figures and New Testament saints, and surmounted by the figure of Christ as a golden cross, above which is the Lamb of God flanked by two angels, have been comprehensively discussed by Weitzmann (1964: 341–352; 1964a: 109–127; Forsyth and Weitzmann 1970: 392–405), and summarized by Tsafrir (1985: 432–435 [Hebrew]). Solzbacher focuses on the theological aspect of the Transfiguration mosaic, and on those depicting Moses removing his sandals in front of the Burning Bush, as well as of Moses receiving the Ten Commandments from God (Sozbacher 1989: 262–268). This is not the goal of the present study, which will deal with several issues pertinent to the understanding of the architecture, artistic design and the stages of development in the church.

The inscription in the Transfiguration mosaic states that the work was carried out during the term of the abbot Loginus, with the aid of his subordinate, Father Theodorus (Ševčenko 1966: 263 No. 7). While the inscription does not reveal the duration of Loginus' term as abbot, the epigraphic style suggests that this took place no later than 600 CE (Beneševič 1924: 153). It is widely accepted that the design of the church was not necessarily completed during the reign of Justinian, and that decorations and alterations were carried out during the entire second half of the sixth century, and even into the beginning of the seventh century CE.

The Orthodox concept of the duality of Christ, as resolved at the Council of Chalcedon, opposed the Monophysitic belief in the single divine nature of Jesus.

This is evident in the central scene of the mosaic, which depicts Jesus the human, who sees his divine Father, accompanied by three evangelists, Jacob, John and Peter. The latter are not watching God but rather the transformation of Jesus from a man into a shape unfathomable by man. Above this scene, though an integral part of the composition, is Jesus in the shape of a golden cross on a background of dark and light blue. This scene emphasizes the divine nature of Jesus. In order to underscore the dual nature, Jesus appears in still another scene above the golden cross, as the Lamb of God. The Lamb of God signifies the sacrifice made by Jesus (in his human nature) for mankind. The scenes of the sacrifice of Isaac and of the daughter of Jephthah (below) represent sacrifices preliminary to the supreme sacrifice of Jesus' crucifixion, thus supporting the Chalcedonian example.

The mosaic bears no evidence of a direct relationship with the site of the Burning Bush. While the Bush figures together with the receiving of the Covenant in the central scene above the apse, it appears to represent a general connection to the arena of these events rather than a direct reference to the Bush.

Two wax paintings appear on the marble pilasters at the edge of the pulpit, flanking the church's apse. The northern painting depicts the Sacrifice of Isaac, while the southern shows Jephthah sacrificing his daughter. These two sacrificial scenes are naturally located near the church's altar. These were apparently painted in the seventh century and are assigned to the Jerusalem school (Weitzmann 1976: 52–55).

The Sacrifice of Isaac is a common theme in Jewish and Christian art, and was a natural choice for this church, representing a preparation for Jesus' sacrifice. The Sacrifice of Jephthah's daughter is an extremely rare motif extensively discussed by Weitzmann (1964: 341–352).

The wooden doors of the church are very similar to those of the Benjamin Church in the Macarius Monastery in Wadi Natrun, dated to the seventh century CE (Evelyn-White 1932 III: 32, Pls. X–XII, XXI).

Summary

The Sinai Monastery church was built during the reign of Justinian, along with the walls of the monastery and various other structures. The church underwent alterations and additions, with its decorations completed at the end of the sixth–beginning of the seventh centuries CE.

The Piacenza Pilgrim makes no mention of this church; it is possible that at the time of his visit, its construction was not complete or it was undergoing alterations. The Piacenza Pilgrim's omission of the site of the Burning Bush, and the connection between the Sinai Monastery and the site of the Bush, are problematic. It is possible that during the Justinian period, when the monastery and church were built, the church was not originally dedicated to the Burning Bush (but served as a regular basilica); only years later was the building's plan altered in accordance with its role in commemorating the Bush. This would easily explain the unconventional location of the holy object – the Bush – not in the center of the church or in its apse, but rather outside and in the back of the building.

The Piacenza Pilgrim describes the walls and the location of the Burning Bush, but he does not mention any church within the monastery. While this is not necessarily indicative, it could possibly infer that his pilgrimage took place when the walls were already completed, but the church, as well as the Mt. Sinai church, were not. Any attempt to date the voyage of the Piacenza Pilgrim must take these factors into account, thus lowering the date to as early as the sixth decade of the seventh century CE.

There is nothing specifically in the mosaic, or in the church in general, to allude to its dedication to the Theotokos. An anonymous medallion, apparently depicting the image of Mary, is only one of many and does not testify to such a contention.

The Inscriptions

Sixteen Greek inscriptions dated to the sixth and seventh centuries CE were discovered in the monastery; a Nabatene and a few Armenian and Syriac inscriptions were found as well (Ševčenko 1966: 255–264). Most of the inscriptions make no significant contribution to the present study, and only three Greek inscriptions need be referred to here. The first was incised on a marble slab, found in the southern chapel in the church – the Chapel of the Sinai Saints. It appears that this inscription was not written in Sinai. It mentions four decades of martyrs of Sinai (Ševečenko 1966: 258). Mayerson (1976: 375–379) does not accept this interpretation and regards it as reference to the date, January 14, which is the Sinai Saints Day.

The second inscription is on a lintel fragment; it mentions the Martyrium of St. Stephen, which apparently existed in the sixth or seventh century CE.

The third inscription mentions 'Gerontius, the father of St. Theodore', indicating that there was a chapel named after this saint in the sixth or seventh century CE.

The Artistic Remains

The excellent state of preservation of the many artistic treasures of the early Byzantine period is a result of several factors: the isolation and fortified nature of the Sinai Monastery; the dry climate; the fact that the site was never abandoned; and its subjugation to Arab rule during the period of iconoclasm, which prevented the destruction of the icons.

The Icons. In the 1960s, 2,048 icons were recorded in St. Catherine's Monastery (Weitzmann 1976: xiv). The earliest date to the sixth century CE and the latest are recent. The Russian Kondakov (Weitzmann 1976: xiii) studied a very small number of these icons in 1877, especially the earlier ones. A more detailed description of 150 icons from Sinai was published by the Greek couple Sotiriou (Sotiriou and Sotiriou 1956; 1958). A complete description, including a stylistic, iconographic and chronological analysis of all the early icons was carried out by Weitzmann (1976). The Russian archimandrit, Porphyrius Osphanski, took some of the Sinai icons to Kiev in 1845 and 1850 CE.

Twenty-four of the icons are dated to the period discussed in the present study. Weitzmann dates the earliest [B/11], depicting John the Baptist, to the end of the fifth or beginning of the sixth century CE. It was apparently produced in the Jerusalem center of icon manufacture (Weitzmann 1976: 32–35). Six other icons were dated to the sixth century, including Mary holding the baby Jesus between Saints Theodore and Gregory, Jesus the Pantocrator (Chatzidakis 1967: 197), St. Peter and others. The majority of sixth-century icons were produced in the icon-manufacturing center at Constantinopole.

Seventeen further icons are apparently from the end of the sixth or in the seventh century. Most of these were produced in the Syro-Palestinian realm, possibly even in Jerusalem (Weitzmann 1974: 33–55; 1976: 13–56). The remainder were produced in Asia Minor, Greece, Egypt and Sinai (Weitzmann 1974: 3–56).

The Bronze Cross. The cross, 1.04 m high and 0.785 m wide (Weitzmann and Ševčenko 1963: 385–398), is inlaid with stones and has spokes for suspending oil lamps. The back of the cross is undecorated, while the front quotes Ex 19: 16–18 in Greek:

> On the morning of the third day there were thunders and lightnings, and a thick cloud upon the mountain, and a very loud trumpet blast, so that all the people who were in the camp trembled. Then Moses brought the people out of the camp to meet God; and they took their stand at the foot of the mountain. And Mount Sinai was wrapped in smoke, because the Lord descended upon it in fire; and the smoke of it went up like the smoke of a kiln and the whole mountain quaked greatly.

Below this the inscription states that Theodora dedicated the cross to the memory of Proclus and Domitia (her parents?).

Both arms of the cross bear depictions of Moses; the left arm shows Moses climbing Mt. Sinai, while the right arm has him removing his sandals. Both the inscription and the iconography indicate that the cross had been made specifically for the Sinai Monastery church, featuring the two holy sites, Mt. Sinai and the Burning Bush. Weitzmann (Weitzmann and Ševčenko 1963: 389), in his discussion of the cross' style and iconography, maintains that it originated in Constantinopole. Ševčenko's analysis of the inscription led him to suggest that the cross was of Syro-Palestinian origin (Weitzmann and Ševčenko 1963: 398). Both scholars assign the cross to the sixth or seventh century CE.

The original position of the cross in the church is not clear. Weitzmann (Weitzmann and Ševčenko: 390) raises several possibilities, though none is definitive. It should be borne in mind that the cross was brought to the already-existing church, so that it never was an integral part of the building. We assume that the cross was originally positioned in the Theotokos church atop Mt. Sinai, and before its destruction the Sinai monks brought it down to their monastery.

The Library

The library of St. Catherine's Monastery is large and voluminous (e.g. Lewis 1894; Clark 1951: 17–24; Atiya 1955; Bayer 1968 [Hebrew]; Murad 1970; Meimaris 1985). In the mid-nineteenth century, Tischendorf found an illustrated bible known as the *Codex Sinaiticus* in the monastery's library. He concluded that it was a fourth-century CE copy from Constantinople, which was presented to the monastery when it was built by Justinian (Tischendorf 1862: 25–114). This manuscript is of great importance for biblical research in general and the Septuagint in particular. On paleographic grounds it was dated to after 340 CE, but no later than the fourth century (Milne and Skeat 1938: 60–65). The manuscript had apparently been corrected twice during the fourth century and once during the sixth or seventh century, with several additional, insignificant corrections in the Middle Ages (Milne and Skeat 1938: 40–50). In wake

of a fire, which broke out in the southern wall of the monastery in 1971, additional pages belonging to ancient copies of the Septuagint were found (Agourides and Charlesworth 1978: 29–31).

The House of Bones

In the monastery's garden, to the west of the western wall, is the chapel of St. Trifon. The monastery's cemetery is located at the foot of this chapel, and its ground floor contains the skeletal remains of the monks, collected from their primary burial following the disintegration of the flesh. Hundreds of such disarticulated bones are arranged according to type so as to prove the insignificance of the body as opposed to the eternal soul (Tsafrir 1971: 77 [Hebrew]). The only complete skeleton is that of St. Stephen from the sixth century; the bones of several abbots are kept separately as well. It seems that the House of Bones was first used during the Byzantine period, and that this was referred to in Anastasius *Narrative* 4. It cannot be determined whether burial in this structure began with the construction of the fortified monastery or earlier. The practice of gathering bones and storing them by type is known from other monastic settlements in the East.

Summary and Conclusions

A. Due to the sanctity of Mt. Sinai, the region became the most important monastic center in Sinai as early as the fourth century CE. Prior to the erection of the fortified monastery, there was no central, organized administrative center. This function had been fulfilled at Pharan, while the seat of the archimandrite of the Sinai monks apparently was located at one of the Jebel Sufsafa monastic settlements. In the valley near the Burning Bush was a tower, a pilgrims' hostel, orchards, the well of Moses and hermit-cells at the edge of Wadi Ed-Deir and on the northern and southern slopes. Most of these sites were destroyed over the years as a result of the construction of the Justinian Sinai monastery.

B. The increasing waves of pilgrims and the rising power of the monks created a demand for the construction of an economic and administrative center near Mt. Sinai (unrelated to the sanctity of the Burning Bush). The isolated settlements were unable to carry out the complex tasks entailed in the system of pilgrimage and protecton of the holy sites; an organized, central force was needed. Among others, these tasks included liaison with the Patriarch in Jerusalem and correspondence with the outside world. It appears that such an administrative center had existed near the site of the Burning Bush even before the Justinian building endeavor, though the historical sources and archaeological finds do not provide evidence.

C. We agree with Mayerson (1978: 34) and Grossmann (1988: 551–553) concerning the role of the fortified site as a monastery, as evidenced in the writings of the Piacenza Pilgrim: *monasterium circumdatum muris munitis* (The Piacenza Pilgrim, 37). This is opposed to Forsyth (1968: 18), based on Procopius, who suggests that the site was a citadel housing a military garrison; he even compares its walls to those of the military camp at Daras (though emphasizing that the Sinai Monastery is much smaller). However, it is true that there are no known parallels for such a fortified monastery outside of Sinai. Sinai monasticism is different from all other monastic centers throughout the Byzantine world, and thus required an alternate arrangement. Fortified enclosures built for passive defense suited the needs and disposition of the Sinai monks. The siege the monks withstood under the leadership of the abbot Gregory (Evagrius *HE* VI, 6), one generation after the construction of the monastery, indicates that the walls were meant to protect the monks rather than serve as a military base. A garrison defending all the Sinai monks was stationed at Pharan. It should be noted that South Sinai was not a border zone of the Empire, and thus there was no need to concentrate forces for border defense at Mt. Sinai. Protection from the Saracen tribes was based mainly on *foederati* ties with several of the tribes and less on a militia (Shahid 1984: 498–510).

D. The construction of the monastery served to establish an already existing situation. During the course of the sixth century, the administrative center was moved from Mt. Sinai to the Sinai Monastery. During the seventh century, the administrative center at Pharan also moved to this monastery.

E. Due to later construction, it is impossible to determine the original plan of the monastery. However, it appears that the main dwelling and auxiliary structures were constructed as casemates along the walls. The church was built in the inner courtyard, alongside the earlier tower. Though there were several additional structures, an extensive area remained open, for the use of the pilgrims.

F. It is impossible to estimate the number of monks who lived in the monastery following its completion; historical sources are of no help in this matter. We estimate that no more than 100 monks inhabited the monastery at the end of the sixth and beginning of the seventh centuries CE. In the fourteenth century, 150 monks dwelled in the monastery and some 50 monks

in the chapels at Jebel Sufsafa (Frescobaldi, Gucci and Sigoli: 59–112). However, this number dwindled and only some 30 monks occupied the monastery (Felix Fabri *PPTS* X 1890: 56).

Monastic Remains in the Er-Raḥa and Er-Rabba Plains

In the heart of the Sinai Heights, near St. Catherine's Monastery, are two adjoining valleys, surrounded by mountains. The valleys drain through two separate riverbeds into Wadi Feiran. Wadi Ghariba (and its continuation, Wadi Esh-Sheikh) is the northernmost valley; it carries the main access road to the valleys. The western valley, the Er-Raḥa Plain, drains into Wadi Abu Silla, which then spills into Wadi Eṭ-Ṭlah.

Jebel Sufsafa towers over the valleys to the east, while to the north are the Ojar and Eṣ-Ṣanʿa mountains, to the west is Jebel Rubsha, and to the south, Jebel Er-Rabba.

The Er-Rabba Plain is rectangular, *c*. 2.5 km long and *c*. 1 km wide. The Er-Raḥa Plain is also rectangular, measuring *c*. 3.5 × 1 km. They converge at a spot where Wadi Ed-Deir drains into them – at St. Catherine's Monastery. At this confluence is the hill of En-Nabi Harun.

These plains, the hinterland of the monastic centers in the mountains, served as a meeting place for scores of pilgrims, giving rise to many holy traditions relating to the sojourn of the children of Israel in Sinai and the giving of the Covenant. The name 'Er-Raḥa' (Arabic 'the rest') is based on the Christian belief that here the children of Israel camped for 40 days and nights while Moses ascended Mt. Sinai.

The easy accessibility of the valleys and their situation in the very heart of the mountainous terrain led to the establishment of many sites, before, during and after the Byzantine period. The multitude of later remains makes it difficult to form a clear concept of the nature of Byzantine monasticism at the pilgrim sites and agricultural farms.

A description of the holy sites (omitting those which became sanctified after the Byzantine period) and monastic remains follows.

Site 21: Er-Raḥa and the Graves of Craving

On the side of the road, in the center of the Er-Raḥa Plain, at the point where Jebel Musa is first revealed, is a prayer niche facing east, toward Jebel Musa. The rectangular niche measures 3.25 × 3.50 m. Its walls are 0.75 m wide and it is preserved to a height of 0.5 m (Finkelstein 1981: 87).

The pilgrim Egeria (Chap. 1, 2; Chap. 2, 3) was the first to describe this site. From her description, it may be inferred that as early as the fourth century CE, the traditions identifying the holy sites with biblical events were already crystallized. She writes:

> ...In the meanwhile we were walking along between the mountains, and came to a spot where they opened out to form an endless valley – a huge plain, and very beautiful – across which we could see Sinai, the holy Mount of God. Next to the spot where the mountains open out is the place of the 'Graves of Craving'. When we arrived there, our guides, the holy men who were with us, said: "It is usual for the people who come here to say a prayer when first they catch sight of the mountain of God", and we did as they suggested... This is the huge flat valley in which the Children of Israel were waiting while holy Moses went up into the Mount of God...

It is not certain that the built prayer niche was there during the time of Egeria; it may possibly be later, dating to the fifth or sixth century CE. However, it is clear that the tradition of praying at the spot whence Jebel Musa was first seen was already entrenched in the second half of the fourth century CE. At this time, most of the events related to Moses, Elijah, the Children of Israel and the receiving of the Tablets had become consecrated.

On the western side of the Er-Rabba Plain, where Naqb El-Hawa ends and the valley begins, is the Bedouin village of Abu Silla. Among the village's houses and orchards are remains of structures and orchards dating to the Byzantine period. Though these remains have never been archaeologically systematically examined, their location on the main pilgrims' route between Pharan and Mt. Sinai, near St. Catherine's Monastery – at a location with fertile ground and abundant water – makes this a suitable site for a monastery, pilgrims' hostel or agricultural farm. It is probable that all three of these functions had existed in the valley.

Aside from the remains at Abu Silla and the prayer niche in the center of the valley, there was a hermit's cell built under a boulder on the northern side of the valley, at the foot of Jebel Es-Sanʿa (5931016195 UTM 1,670 m asl).

Site 22: En-Nabi Harun
5944516050 UTM 1,610 m asl

En-Nabi Harun (the Prophet Aaron) is a small hill overlooking St. Catherine's Monastery to the east and the Er-Raḥa Plain to the west. Tradition holds that this was where Aaron cast the golden calf. Egeria provides the following description: "This is a valley in which the calf was made, and the place is marked till today by a wide stone" (Wilkinson 1971: 91). Felix Fabri (*PPTS* 1890 X: 592) relates that this is where Moses stood when he told the people of God's will, and where, subsequently, the golden calf was erected.

Site 23: Deir Rabba
5927015895 UTM 1,600 m asl

The Deir Rabba Monastery is located on the southern side of the Er-Rabba Plain, adjoining the mountain of the same name. The monastery is named after the twelve disciples. Palmer (Wilson and Palmer 1869 294) identifies it with Getrabbi (Γεθραββὶ) mentioned by Ammonius (Combefis 1660: 91; Lewis 1912: 5), concurred by Schiwiets (1913: 23–26). A similar name is given by Nilus: Βησθραβη (*PG* 79: 664). These proposals are based on the similarity between the names Getrabbi and Jebel Rabba. Ammonius relates that twelve monks were killed at Getrabbi – thus supporting the affiliation with the twelve disciples. In our opinion, the data are insufficient. The dedication to the twelve disciples is a more recent phenomenon and lacks ancient background. If this is indeed the Getrabbi monastery mentioned in the sources, then it most certainly must have had a wine industry (*gat* 'winepress').

It is difficult to reconstruct the Byzantine complex at the site due to later construction, but it undoubtedly had a large central building, two additional buildings, a large pool, and orchards covering an area of more than three and a half dunams.

Two conduits led water to Deir Rabba. One poorly preserved conduit, 850 m long, came from ʿEin Tufaḥa. The other came from a presently dry spring in Wadi Abu Haiman (a tributary of Wadi El-Arbaʿin). Many segments of this conduit were preserved; it is 950 m long, with an average width of 0.18 m and an average depth of 0.35 m. The smoothly plastered conduit has a steep gradient, with the source at 1,750 m asl, and its outlet at 1,600 m asl. The conduit is built on a series of high retaining walls and is partly hewn into the rock. Sherds of Byzantine storage jars were found in excavations along this conduit.

At the foot of Naqb Abu Jiffa, near ʿEin Tufaḥa (one of the water sources of Deir Rabba), is a completely ruined Byzantine structure, which yielded numerous pottery vessels of varied types (see Calderon, this volume). The archaeological data do not resolve whether these remains belonged to a monastery.

Site 24: The El-Bustan Church
5931515945 UTM 1,605 m asl

A late tradition dedicates this church to the Theotokos. It is located on the eastern side of the Er-Rabba Plain, near its confluence with Wadi Shreij. Schiweits (1913: 23–26) identifies this church with the Horeb mentioned by Ammonius (Lewis 1912: 5). We maintain that the latter pertains to Mt. Horeb, rather than this site.

Here, too, the later structures preclude a clear picture of the earlier remains. However, it appears that at least one building, a pool and an orchard, covering an area of more than one and a half dunams, are to be dated to the Byzantine period.

Site 25: Wadi Umm Serdi
5920015840 UTM 1,700 m asl

Wadi Umm Serdi drains the slopes of Jebel Rabba and Jebel Aḥmar into the Er-Rabba Plain, flowing from south to north. In the upper part of the wadi, some 300 m south of ʿEin Tufaḥa, is a Byzantine compound, composed of a building, a large plastered pool, and an orchard covering *c.* 1,500 sq m. In the course of the archaeological survey, many pottery sherds dating to the fourth and fifth centuries CE were found. Nearby are remains of later structures and modern orchards, which possibly mark the site of orchards from the Byzantine period.

It is not clear whether the remains in the valley were part of a monastic complex or a farm.

Summary

It is probable that during the Byzantine period, many more sites than those known today existed in these valleys. It is not clear whether monks, who perhaps preferred to dwell in the more isolated mountains and the Sinai Monastery, inhabited the valleys. It is plausible that a small community of monks did indeed dwell in these valleys.

The holy traditions concerning the campsite of the Children of Israel during Moses' ascent to Mt. Sinai, the Graves of Craving, the site of the Golden Calf, and the rock from which water flowed when Moses hit it, were crystallized no later than the fourth century CE.

Monastic Settlements and Holy Sites in Wadi El-Leja

Site 26: Deir El-Arbaᶜin
5945015700 UTM 1,750 m asl

This site is located in Wadi El-Leja ('the Valley of the Echo'), also called Wadi El-Arbaᶜin. The wadi is situated in the valley between the massif, which forms Jebel Musa and Jebel Sufsafa to its north, and the massif of the Er-Rabba, Aḥmar and Catherine Mountains to its south. The site covers *c.* 60 dunams (Wilson and Palmer 1869 I: 114, 208). The dedication of the site to the 40 martyrs of Sinai is a tradition dating as late as the fifteenth century. Frescobaldi visited the monastery in 1384 CE (Bellarini and Hoade 1948: 62). He mentions the monastery as 'Holy Mary of Mercy', claiming that the name reflects the forgiveness and mercy shown by God when reinstating one of the Tribes of Israel after it deserted its faith. Frescobaldi also refers to the many remains of saints in the monastery. Writing at the end of the fifteenth century, Felix Fabri calls it 'the Monastery of the 40 Martyrs' (*PPTS* 1890 X: 562). Though there is no unequivocal reference to this site in the ancient sources, Egeria (Chap. 3, 1) describes a church located at the foot of Mt. Sinai (not near the Burning Bush), with an abbot and monks who dwell in cells nearby. Though scholarly consensus maintains that Egeria was referring to this monastery (Wilkinson 1971; Solzbacher 1989: 140), this is far from certain. The ancient remains attest that a large monastery had indeed existed at this site. Weill (1908: 219) identifies the site with Kodar [Κοδαρ], mentioned by Ammonius (Combefis 1660: 91; Lewis 1912: 5) in his description of the slaughter of 40 monks near Mt. Sinai. However, this identification is debatable. In our opinion, it is possible that during the Byzantine period, this monastery had been called Arselaus, which was repeatedly mentioned in the tales of Anastasius the monk.

The most impressive of the ancient remains at the site is the water system, which contains three pools and a well, all well preserved. Each pool was equipped with a conduit, which filled it with water, and irrigation outlets to nearby fields. The pools received their water from two sources: a spring in Wadi Jerjenia, which supplied water to the pool roofed with three arches, and runoff flood water which flowed into the other two pools. The well is filled with ground water from the arcosic soil. The well is *c.* 4 m in diameter and *c.* 4 m deep; steps were built along its side leading to the bottom. The well's mouth is a marble, octagonal base in secondary use, with a hole drilled in it (above, Fig. 9).

It is difficult to assess the scope of the agricultural fields, as numerous later remains cover them. The entire area was certainly no more than 60 dunams, as Wilson and Palmer estimate (1869 I: 114), more likely nearer a mere 10 dunams.

The Byzantine structure is apparently concealed below the modern building.

Site 27: The Cave of Onophrius
5940015765 UTM 1,705 m asl

This complex is also located in Wadi El-Leja, *c.* 700 m northwest of Deir El-Arbaᶜin. A later chapel was erected at the site, covering the Byzantine remains. The chapel was built on a large boulder covering a cave; tradition maintains that Onophrius went into seclusion there (Fig. 14).



Fig. 14. The Chapel of St. Onophrius in Wadi El-Arbaᶜin.

None of the ancient sources (The Life of Onophrius: *PL* 73: 211–222; and Sulpicius Severus, *Dialogi* I 17, *CSEL* I: 169) describe the site of the saint's seclusion. It appears that the attribution of this site to Onophrius is a later tradition, with the purpose of creating a consecutive chain of holy sites along one route, in order to facilitate the pilgrims' trip to Jebel Catherine.

Near the chapel, on the boulder, were remains of two fenced orchards, covering a total area of *c.* 550 sq m.

Site 28: The Rock of Moses
5932515840 UTM 1,655 m asl

This site is located on the northern bank of Wadi El-Leja, near the main path from the Er-Raḥa Plain to Deir El-Arbaʿin.

Both Egeria (Chaps. 5, 6) and the Piacenza Pilgrim (Wilkinson 1977: 87) recount that this is the rock which Moses struck and brought forth water (Num 20: 11). It is certain that this rock was identified and sanctified by the monks as early as the fourth century, and it is probable that this tradition was not altered during the course of the Byzantine period. The Piacenza Pilgrim, reaching Sinai via the Negev, describes the rock:

> ...On the eighth day at the place where Moses brought water out of the rock. A day's journey from there we came to Horeb, the mount of God...

It may thus be inferred that the monks identified the rock north of Jebel Musa, on the main path in Wadi Esh-Sheikh, and not in Wadi El-Arbaʿin. It appears that the identification of the rock occurred following the sanctification of Jebel Catherine, as a result of the religious fervor that possessed the monks and pilgrims in the wake of the Crusades, reaching its peak in the fourteenth and fifteenth centuries CE. It is not clear whether Felix Fabri's description (*PPTS* 1890 X: 588) pertains to this rock.

Site 29: The Outlet of Wadi Abu Haiman
5931015870 UTM 1,640 m asl

This site is located in Wadi El-Arbaʿin, some 400 m down the wadi from the Rock of Moses. The site contains remains of two fenced orchards covering an area of *c.* 480 m, as well as an almost entirely ruined structure, on the southern bank of the wadi. Many Byzantine pottery sherds were collected near this structure, as well as fragments of windowpane glass. It seems that this building had three rooms.

In Wadi Abu Haiman, *c.* 300 m away from the structure, are two hermit-cells built under boulders; the cells are 50 m apart and are not mutually visible.

Tolas and Monastic Settlements in Wadi Eṭ-Ṭlah

Wadi Eṭ-Ṭlah is one of the major riverbeds in the Sinai Heights massif. The wadi runs along a southeast–northwest geological fault, parallel to another geological fault to its south, which forms the Er-Raḥa Plain and Naqb El-Hawa. The wadi and slopes draining into it are composed of red granite of the Iqna Catherine type. The wadi drains into Wadi Solaf, and from there to Wadi Feiran. The proximity to Mt. Sinai, together with its relative isolation, made the wadi a meeting place for many monks, the most well-known of whom was John Climacus, the author of *The Ladder of Divine Ascent* and the abbot of the Sinai Monastery.

It appears that the source of the name Eṭ-Ṭlah is the ancient name, Tolas (Θθλαζ), first mentioned in the writings of Nilus (*Narrative* 6: *PG* 79: 664), and later described by Daniel of Raitho, in his account of John Climacus' place of seclusion (*PG* 88: 596–608). This is the only monastic center in South Sinai, aside from Horeb, whose identification is undisputed.

Aside from the remains of the Byzantine monastic settlements, the wadi contains medieval remains, as well as many orchards which are still presently under cultivation; it is difficult to discern whether the orchards are modern or ancient. Following is a discussion of the remains.

Site 30: Deir Fojar
5919016010 UTM 1,630 m asl

This is a lone structure, measuring 5.50 × 4.20 m, located on the northern bank of Wadi Quweiz, which is the eastern continuation of Wadi Eṭ-Ṭlah, descending toward the Er-Rabba Plain and the foot of Jebel Rubsha. Near this structure is the path from St. Catherine's Monastery to Wadi Eṭ-Ṭlah.

This structure was totally ruined by the Bedouin in recent years, and its plan cannot be reconstructed. Among the remains recovered in the ruins is a clay pipe, which might have belonged to a winepress, as well as Byzantine and glazed pottery.

Remains of two agricultural plots were found nearby.

Site 31: Deir Talaᶜa (Deir Rahib)
5914015960 UTM 1,595 m asl

This site is located in Wadi Talaᶜa, which is the main upper tributary of Wadi Eṭ-Ṭlah. It contains a modern monastery and a large olive orchard cultivated by the monks, who have an olive-oil industry.

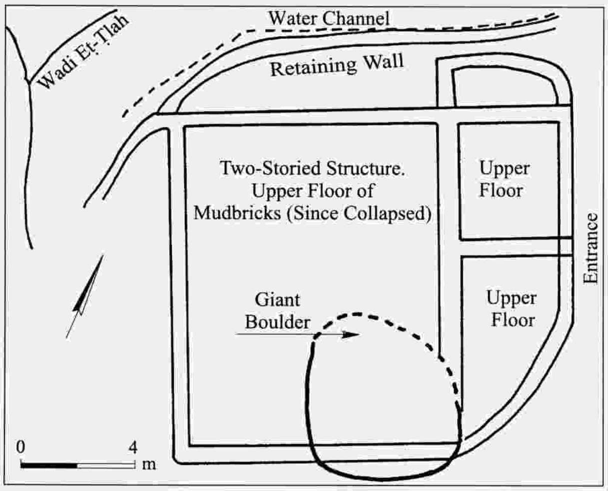
It is not clear whether there are ancient remains under the modern structures and orchard.

Site 32: Farsh Shammaᶜa
5917016065 UTM 1,620 m asl

This is a small valley on a ridge between the Er-Raḥa Plain and Wadi Eṭ-Ṭlah. In the valley, known as Farsh Shammaᶜa by the Bedouin, is a small Byzantine building, remains of a fenced orchard covering *c.* 650 sq m and a hermit-cell under a rock shelter near the building. Two monks probably inhabited the site.

Site 33: Deir Fukarra (The Monastery of St. Cosmas and St. Damian)
5914016065 UTM 1,560 m asl

The remains of this monastery are situated where Wadi Talaᶜa flows into Wadi Et-Ṭlah. This is a two-storied stone building, whose lower floor measured 13 × 15 m (Plan 16). The second floor covered an area some two-thirds that of the ground floor, which was constructed of mudbrick, with only the foundations preserved. The southern part of the structure is built on a giant boulder.



Plan 16. Deir Fukarra in Wadi Eṭ-Ṭlah – the central building.

The eastern wall of the second floor is thicker than the others, with remains of the bottom part of the inner niche of a chapel, which apparently had occupied the northern half of the second floor. Though the plan of the ground floor is unknown pending excavation, the eastern part of the building, which is not covered by a second floor, had two rooms. An additional room, whose function apparently was to support the building, retains the eastern part of the northern wall. Though the entrance has not been preserved, analogy to other buildings in Sinai indicates that this floor was accessed via the roof of the ground floor in the eastern part, which served as a porch for the second floor.

A retaining wall protects the northern side of the building facing Wadi Eṭ-Ṭlah. Near this wall are remains of a plastered conduit, which carried water from the spring in Wadi Eṭ-Ṭlah to the agricultural plots in the wadi.

Between the building's northern wall and the retaining wall is a surface covered with thick hydraulic plaster, from which a clay pipe protrudes. This probably was part of a winepress, which had adjoined the building.

Nearby are numerous Byzantine orchards, some of which still have remains of water conduits and plastered collection pools.

Deir Fukarra is identified with the monastery of the saintly Arab doctors, Cosmas and Damian, though this is not mentioned in any ancient sources. Felix Fabri was the first to mention the Monastery of Cosmas and Damian (*PPTS* 1890 X: 590), relating that this was the site where the monks believed that more than 13,700 members of the Korah, Dathan and Abiram families were put to death by God (Lev 16: 32–33), when the earth opened up and swallowed them. (This legend does not conform with the biblical narrative.) The British survey also names this site for these saints (Wilson and Palmer 1869: 207). The Bedouin call the site 'Deir El-Ḥabash' ('the Monastery of the Prisoners'), according to the elders of the Jebeliya tribe. Up until the time of the British mandate, monks who went astray were brought here to be incarcerated. The British survey team claimed that Deir El-Ḥabash is to be identified with the Climacus Monastery, located nearby in Wadi Eṭ-Ṭlah and not in Deir Fukarra (Wilson and Palmer 1869: 207).

Site 34: El-Miliq
5907516150 UTM 1,460 m asl

This is the name used by the Bedouin to designate an area in Wadi Et-Ṭlah, where a very large hermit-cell is



Fig. 15. Hermit-cell at El-Miliq in Wadi Eṭ-Ṭlah.

built under a boulder, on the northern bank of the wadi, near its flow path (Fig. 15).

It is one of the most elaborate cells found in Sinai. Bedouin, who use it as a storeroom, have recently renovated the cell. Near the cell is a building composed of two small rooms, whose exact plan is unknown; it was entered from the south. There are three fenced orchards near the building and cell. The uppermost orchard covers an area of *c*. 370 sq m, the central one 270 sq m and the lower, 520 sq m. In the latter, the base of a Byzantine oil-press screw was found.

Site 35: The Cell of Climacus
5907016145 UTM 1,500 m asl

The hermit's cell attributed to John Climacus is located in a narrow, steep wadi, which drains Jebel Fadaliya into Wadi Eṭ-Ṭlah. The cell is some 140 m west of Wadi Eṭ-Ṭlah, underneath a waterfall, built under a large boulder, with its entrance from the northeast. (In 1968, the cell's entrance wall was rebuilt, and an iron door was added. In 1979, a new chapel was constructed below it, with a flight of stairs leading from the chapel to the cell.)

Below the cell are the remains of a Byzantine orchard covering an area of *c*. 500 sq m and containing a well. An additional orchard, covering some 200 sq m, is located at the top of the waterfall above the cell.

Site 36: Deir Eṭ-Ṭlah
5902016260 UTM 1,390 m asl

This site is located on the northeastern bank of Wadi Et-Ṭlah, *c*. 500 m above the point where Wadi Abu Silla flows into Wadi Eṭ-Ṭlah. The site contains a large structure composed of two adjoining units. The building measures 15 × 20 m and is built of a combination of stones and fired mudbricks, roofed with clay tiles. The building, which had two floors, was recently destroyed by the Bedouin. Among the ruins are pottery sherds of North African vessels, fragments of glass lamps, and a large amount of glass windowpanes with plaster frames. It is very probable that the building had contained a chapel, which served as the center for the hermit monks who lived nearby.

Near the building is a hermit's cell, while on the opposite side of the wadi, *c*. 200 m to the west, is an additional cell. In the wadi below, between Deir Eṭ-Ṭlah and the outlet of Wadi Abu Silla into Wadi Eṭ-Ṭlah, are six orchards covering some 8 dunams.

Site 37: The Outlet of Wadi Esh-Shagg into Wadi Eṭ-Ṭlah
5898016340 UTM 1,360 m asl

At the point where the narrow, steep canyon of Wadi Esh-Shagg descends into Wadi Eṭ-Ṭlah, the ravine

widens to contain a series of orchards from the Byzantine period, covering a total area of *c*. 6 dunams.

These orchards were watered by a spring located some 500 m above them, up Wadi Esh-Shagg. A built conduit extends from the spring, preserved along the western bank of the wadi; the conduit is covered by a thick layer of travertine, which testifies to its extensive use. Some 80 m from the spring is a small, built pool from which an additional conduit flows for another 400 m to a large plastered pool, measuring 10 × 3.70 m, 2.70 m deep. While there are shorter conduits continuing from the latter pool to the orchards, it was also possible to bypass the pool and irrigate the orchards directly.

Near the pool is a hermit's cell under a rock, known by the Bedouin as Ḥajar Umm Dangur.

Near the site is a concentration of medieval structures constructed in a consecutive row, possibly covering foundations of Byzantine structures.

Summary

A. Wadi Eṭ-Ṭlah was called 'Tolos' during the Byzantine period and served as one of the most important centers of seclusion in Mt. Sinai.

B. The wadi and the tributaries feeding into it contain abundant water and agricultural land. Most of the water comes from springs, with only a small quantity from wells. The fertility of the soil and the availability of water gave rise to a large number of cultivated orchards.

C. In those orchards, less than 1,550 m asl, olive trees, which provided the raw material for the production of olive oil, were grown together with fruits and vegetables.

D. The wadi was inhabited by hermit monks who lived in small groups concentrated around three centers, which served for common prayer and worship: the upper church at Deir Fojar, the central church at Deir Fukarra and the lower church at Deir Eṭ-Ṭlah.

E. In our estimate, Wadi Eṭ-Ṭlah and its tributaries were home to 30–50 monks. The total area of the orchards, which undoubtedly date to the Byzantine period, reaches about 30 dunams.

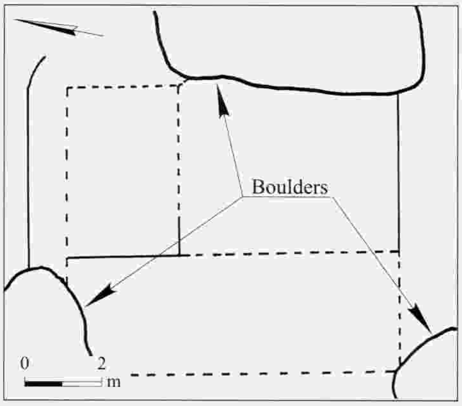
Monastic Settlements in Wadi Abu Jerus

Wadi Abu Jerus is located in the heart of the Sinai Heights, to the north of Jebel ʿAbbas Basha, flowing from south to north into Wadi Esh-Shagg, which drains into Wadi Eṭ-Ṭlah. The wadi is steep and canyon-like in places. Two small valleys located in its center contained the remains of monastic settlements. The lower monastery is called Deir Shoḥat by the Bedouin, the upper Deir Rummana.

The only paved path reaching this complex comes from Wadi Eṭ-Ṭlah, ascending through Wadi Esh-Shagg and from there to Wadi Abu Jerus. Numerous retaining walls, as well as built and paved segments, have been preserved along this path.

Site 38: Deir Shoḥat
5893016260 UTM 1,700 m asl

Deir Shoḥat ('the Monastery of the Rhamnus') is a small monastery situated on the west bank of a canyon-like part of Wadi Abu Jerus, *c*. 650 m from Deir Rummana (see below). This is a large structure measuring 8 × 9 m, whose stone walls incorporate three large boulders. Though the building has been largely destroyed and its stones plundered, it is evident that it contained at least three rooms. Close by, under a boulder, is a built hermit's cell (Plan 17).



Plan 17. Deir Shoḥat – the structure.

In the wadi nearby is ʿEin Shoḥat, which was the monastery's water source. The spring is hidden from view by large boulders, which lie in the flow path of the wadi. On the eastern side of the wadi are several agricultural plots covering a total area of two dunams.

Some 250 m down the wadi, on its west bank, is an additional hermit-cell.

Site 39: Deir Rummana
5892016200 UTM 1,790 m asl

This monastic complex contains six orchards dating to the Byzantine period, covering a total area of 7.2 dunams, as well as three buildings, a spring, a plastered pool, built water conduits, cisterns and five hermit-cells.

Near the upper orchard are the ruins of a small Byzantine building, whose plan cannot be reconstructed.

Not far from this structure is a spring called ʿEin Abu Jerus. Two water conduits lead from the spring to the upper orchard and lower orchards, where there is a plastered pool at 5893016150 UTM.

The building of Deir Rummana, which constituted the center of this monastic complex, apparently contained a chapel. It was built on a rock step on the southern bank of the valley, some 10 m higher than its bed. In the early 1970s, the building was plundered by the Bedouin. According to the Bedouin, the building had an inner niche in its eastern wall. The nature of the collapse indicates that there had been two floors.

Below Deir Rummana is an orchard with a dam built of large stones, which protects it from the flow path.

Opposite Deir Rummana, on the northern bank of the wadi, is another small Byzantine building, almost completely in ruins, aside from a small underground room with an opening facing south to the wadi. This is a small, narrow room, which had been roofed by diagonal stone slabs. The upper building had been in ruins in the Middle Ages, when an additional room was built, from which there was access to the underground room. This room might have served as a monk's dwelling, though it is more probable that it was a storeroom where fruit could be kept cool.

Between the main building of Deir Rummana and the underground room, under the orchard with the dam, is an enormous boulder in the wadi, atop a small spring and a hermit's cell.

Aside from the latter cell, four additional hermit-cells were found on the slopes near Deir Rummana.

Summary

It is possible that Deir Shoḥat was not an independent monastery, but rather an offshoot of the main complex located at Deir Rummana.

Wadi Abu Jerus contained one chapel, two large buildings, a two-room structure, seven hermit-cells and *c.* 9,200 sq m of cultivated orchards.

It appears that the wadi was inhabited by 13 to 20 monks, each cultivating an average of *c.* 550 sq m in the orchards.

Monastic Settlements in the Freʿa Mountain Massif

The Freʿa Mountain massif is a northwestern block located in the Sinai Heights, bordered on the east by Wadi Esh-Sheikh, on the north and west by a circular dike, and on the southwest by Naqb El-Hawa and the Er-Raḥa Plain.

The massif covers *c.* 95 sq km, and is divided into two equal parts by Naqb Abu Zeituna, Wadi Zeituna, and its continuation, Wadi Nuqra. Its southwestern part, *c.* 10 km long and *c.* 4.5 km wide, is composed mainly of Iqna Catherine granite, and contains a large concentration of monastic settlements.

The Freʿa monastic complexes are presented below as a widely dispersed sub-unit, related to the center around Jebel Musa.

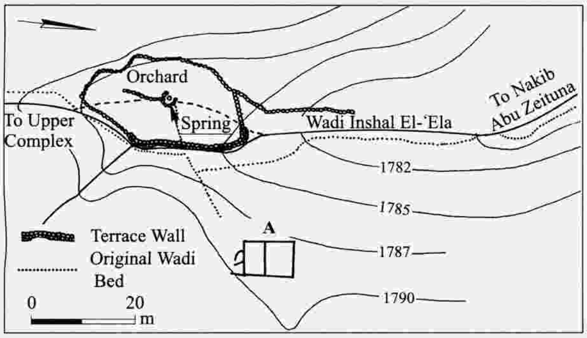
The Freʿa monastic settlements have not been previously surveyed. Following is a description of these complexes.

Site 40: Deir Abu Mghar
594163 UTM 1,800 m asl

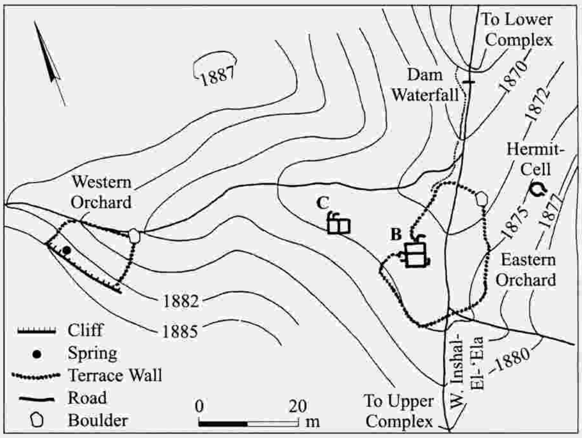
Deir Abu Mghar (Arabic 'the Monastery of the Cave Father [or Cave Owner]') is located in the Freʿa Mountain ridge, *c.* 4.5 km north-northwest of St. Catherine's Monastery. The complex is built in Wadi Inshel El-ʿEla, which drains the slopes of Jebel Ojar (2,048 m asl) into Wadi Nuqra, which drains by way of Wadi Solaf into Wadi Feiran and the Gulf of Suez.

The site is divided into two complexes situated along the wadi, *c.* 500 m apart. The lower complex (Plan 18) is located in a steep ravine and contains a central building, an agricultural plot, a spring and a possible hermit's cell. The upper complex (Plan 19) is built in a valley, which is created by the juncture of three tributaries. It contains two buildings, two orchards, a spring and a hermit's cell. A partially-built path runs along the valley between the two sites, which also contains a sturdy, high dam meant to protect the lower complex from floods.

Three paths connected Deir Abu Mghar with the center concentrated around Mt. Sinai. The shortest is very steep and served pedestrians only. This path ascends



Plan 18. Deir Abu Mghar – the lower complex.



Plan 19. Deir Abu Mghar – the upper complex.

to the south from the site, turning east at the summit of Jebel Ojar, and then climbing to the summit of Jebel Sunaʿa, from which it steeply descends directly to En-Nabi Harun. The second path, though longer, is more commodious; it descends north along Wadi Inshel El-ʿEla and Naqb Abu Zeituna. It then joins the main path, which passes through Wadi Ghariba (the upper part of Wadi Esh-Sheikh). The third path, also long, is more convenient; it continues from the site westward to Wadi Inshel El-Asfal, and from there to Naqb Freʿa and to the Bedouin village of Abu Silla at Naqb El-Hawa. The site was excavated under the supervision of the author, with the aid of volunteers in 1979 (Dahari 1993: 341–350).

The Lower Complex
5945516370 UTM 1,785 m asl
This complex is situated in a slightly wider part of Wadi Inshel El-ʿEla, which flows from south to north.

The Orchard and the Spring (see Plan 18)
The orchard is located in the flow path of the wadi, surrounded by a thick stone fence. When the orchard was established, the flow path was artificially subverted to the east by deepening the ground level there, and reinforcing the eastern fence to a width of *c.* 2 m. Thus, the fence served as a dam, protecting the orchard from floods in the wadi. An auxiliary safety dam was built in the wadi, near the upper complex.

The orchard is elliptic; it has a spring in its center, which is still active today; a stone fence encloses the spring on its east. A terrace, which extends from the spring to the south, creates two different levels in the orchard, *c.* 0.35 m apart.

The orchard covers *c.* 520 sq m. A built, stepped path connects the orchard with Building A.

Some 50 m to the west of the orchard, on the slope, is a cave *c.* 4 m deep. This possibly served as a hermit's cell, and possibly is the source of the site's name – Deir Abu Mghar. The cave showed no traces of occupation or construction.

Building A (Plans 20, 21)
This is the central building of the site, located on a rock step on the east side of the wadi, *c.* 18 m from it and the orchard's fence. The building measures 9.6 m from north to south and is 5.8 m wide.

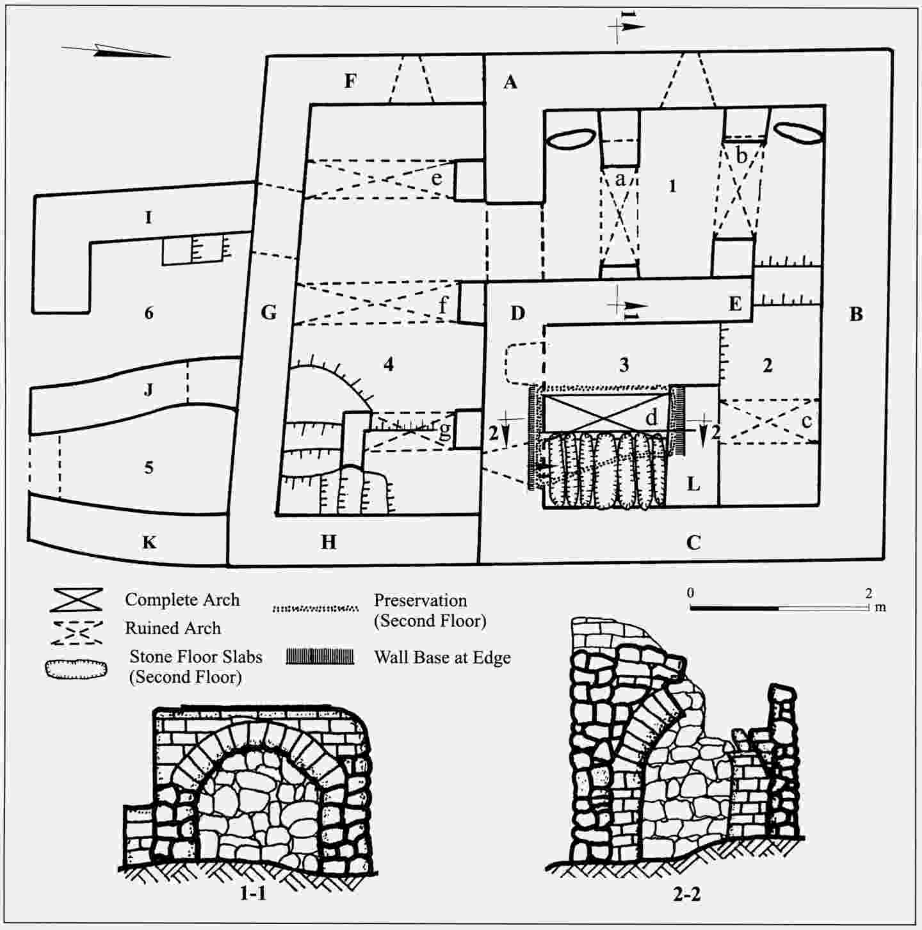
The building is composed of three rectangular spaces. The northernmost was built first and contained two floors. The central space was subsequently added, and contained one floor. The southernmost space served as an approach corridor, and only one of its rooms was roofed.

The ground floor of the building was built of stone, and the second floor of fired mudbricks. Arches, 0.95 m apart, supported the roof of the lower floor; they were built of fired mudbricks, capped by long stone slabs.

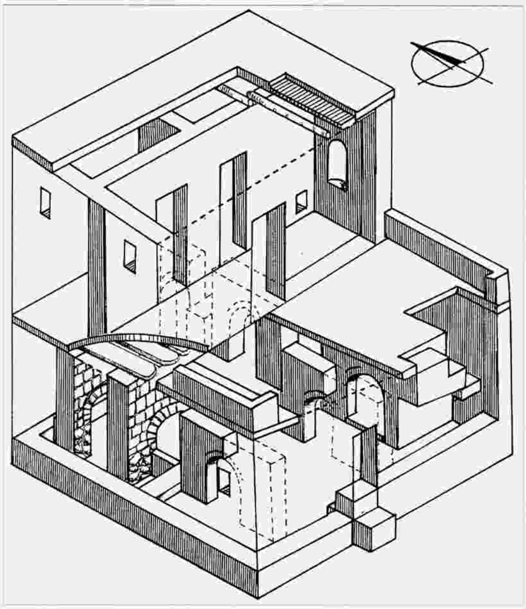
The Southern Space. This space contained two rooms (Rooms 5, 6; Fig. 16), that were apparently added at some later stage.

Room 5, the easternmost, was small, with an entrance in the southern wall and a window in the lower western wall, which afforded a view into Room 6. The internal measurements of the room are 1.2 × 1.9 m. The room has no access to the main building.

Room 6 served as a corridor for the building and was unroofed; it was entered from the south and was open on the east. The western wall (Wall I) was low and served as a step in the raised entrance which led to the main space. Two steps led up to this wall from the interior of the room



Plan 20. Deir Abu Mghar – Building A, plan and sections.



Plan 21. Deir Abu Mghar – isometric reconstruction of Building A.

The Central Space (*Room 4*). This space contained Room 4 (Fig. 17) and a flight of stairs on the eastern side, leading to the second floor (Fig. 18). The internal length of this room from east to west is 4.80 m and the average width is 2.25 m. The room is entered from the south. Opposite this entrance, in the north of the room, is an opening leading to the northern space.

Three arches (Arches e–g) supported the roof of this room. Arches e and f spanned the entire width of the space, while Arch g was built between the northern wall (Wall D) and the central rectangular pillar. Between the latter and the western and southern walls was the flight of eight stairs leading to the roof.

The floor, which slopes gently up from west to east, is partly composed of levelled bedrock and partly of levelled, packed mud plaster. The room has an average height of 2.2 m, and thus it was possible to walk upright, aside from under the arch span, which necessitated bending. The western wall (Wall F) contained a window.

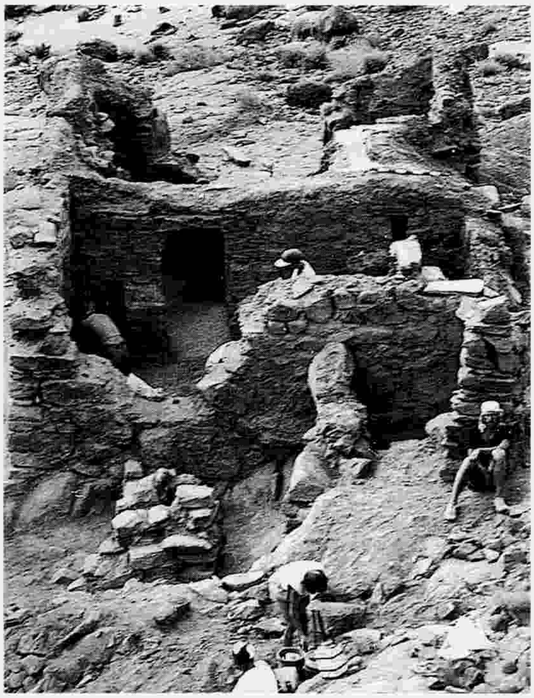


Fig. 16. Deir Abu Mghar, general view of Building A, looking north.



Fig. 18. Deir Abu Mghar, Building A, the stairwell, looking east.



Fig. 17. Deir Abu Mghar, Building A, Room 4 and the staircase.

The Northern Space (*Rooms 1–3*). This is the main area of the building, its length 5 m from east to west (excluding the walls) and width – 3.5 m. There are three rooms on the ground floor and apparently there had been two to three rooms on the upper floor.

The space is entered from Room 1 (Fig. 19), through a completely-preserved opening in the southern wall (Wall D). The roof was supported by two arches, whose support pillars were composed of mudbrick. The floor is made of hard white plaster.

In both the northern and southern corners of the western wall (Wall A) are two built troughs, 0.60 m deep (Fig. 20), which adjoined the northern and southern walls respectively on one side, and the support pillars on the other. The walls enclosing the troughs on both sides are built of one stone slab. The function of the troughs is not clear. It appears that this room, along with the other two rooms in this space, served for storage. Since the troughs were not plastered inside, they most likely were used to store solid rather than liquid commodities.

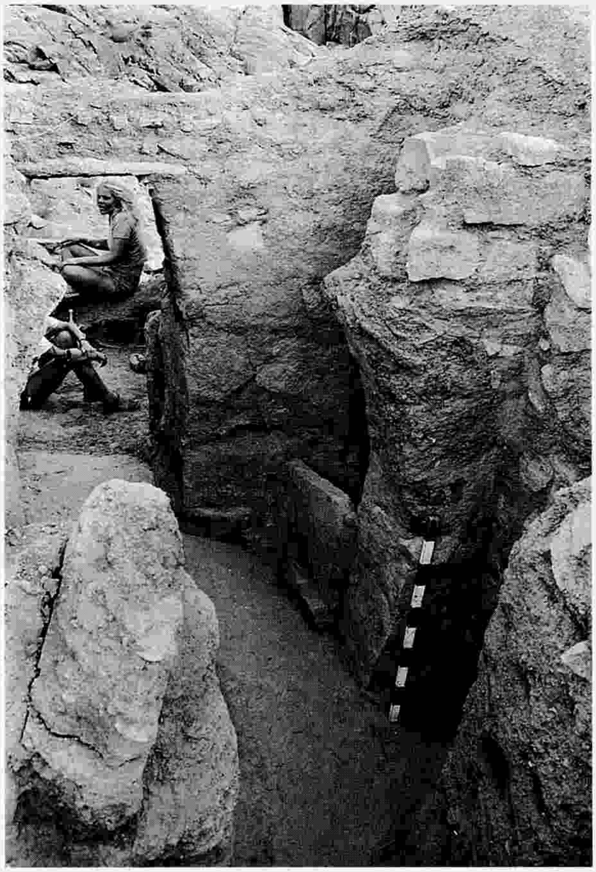


Fig. 19. Deir Abu Mghar, Building A, Room 1, looking south-southwest.

In the center of the western wall, between the two support pillars, was a window, which, like all the others in the building, was shaped like an embrasure, i.e. wide on the inside and narrow on the outside.

A raised step separated Room 1 from Room 2. The latter was a small room, measuring 2.20 × 1.05 m. The roof was supported by a single arch. The floor slopes gently up to the east.

The entrance from Room 2 to Room 3 is through the southern wall of the former. Room 3 is small, measuring 2.25 × 2.20 m. Its roof was supported by Arch d, which was preserved in its entirety, including the floor of the room above it (see below, and Figs. 21, 22). A niche was built in the right part of the southern wall of the room (Wall D), as well as a window, which faces the staircase in the central space.

It appears that all these rooms were meant for storage, as numerous Byzantine storage-jar sherds were found in them, along with a small amount of North African wares and glass fragments of both lamps and windows, as well as a scrap of carbonized fabric which was made of cotton in a unique fashion (see Cooke and Shamir, this volume).

The Upper Floor (see Fig. 22). This entire floor was built of mudbricks, with a roof composed of wooden beams and beaten earth, of which many remains were found on the lower floor. The upper floor was reached by a flight of stone stairs (see Fig. 18), which led to the roof of the central space. This roof served as the entrance porch to the second floor, which was built only over the northern space.

The entrance was in the center of the southern wall of the southern room on this floor. This room measured 4.80 m long and 1.85 m wide. The eastern side of the southern room was in ruins, so that its exact plan cannot be reconstructed. However, it appears that this had been



Fig. 20. Deir Abu Mghar, Building A, Room 1, looking west.

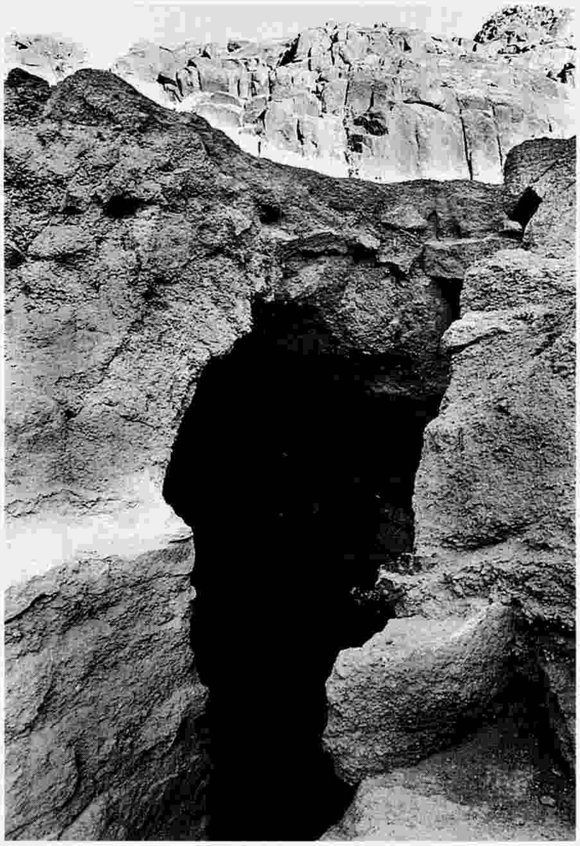


Fig. 21. Deir Abu Mghar, Building A, Room 3, Arch d.

the chapel of Deir Abu Mghar. This is proposed based on analogy to the chapels at Sigilliya and ᶜEin Najila.

To the north of this room was an additional room, or possibly two, as the poor state of preservation makes it difficult to determine. Thus, the plan appearing in the isometric reconstruction is mainly conjecture (Plan 21).

The Upper Complex
5944016345 UTM 1,875 m asl
This complex is located in a valley created by the confluence of three tributaries. The complex contains two buildings (B and C), two agricultural plots (the eastern and the western orchards), as well as a hermit's cell, a spring and a dam in Wadi Inshel El-ᶜEla (see Plan 19).

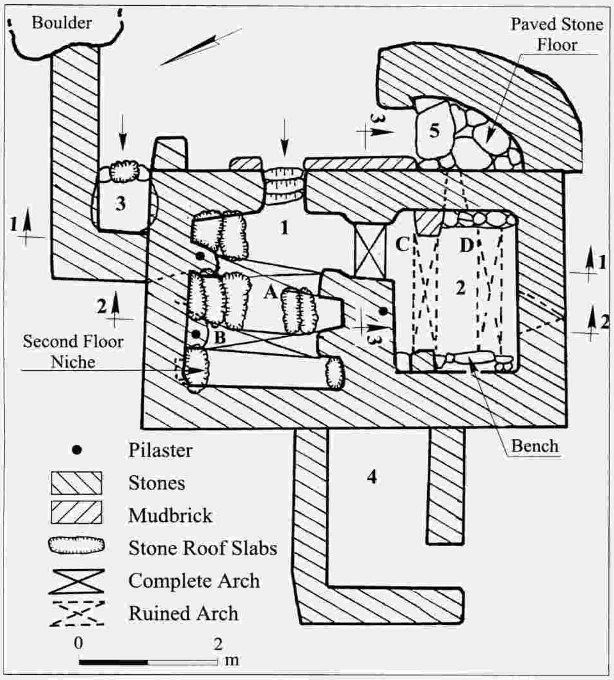
The Orchards. The eastern orchard is oval, covering *c.* 550 sq m, and surrounded by a stone fence, which is incorporated into Building B on its west. The orchard's fence blocks the wadi's flow path, as the valley is located in the upper drainage basin and is in no danger of flooding. In the center of the orchard was a square stone structure with an opening in its center measuring 0.50 × 0.50 m. Though this structure was not excavated, it appears to be the mouth of a cistern. Near this square, a probe revealed that ground water can be reached at a depth of 0.80 m (in the arid summer months).

The smaller, western orchard is rectangular, covering 250 sq m, and surrounded by a fence on three sides, while its southern side adjoins a rock cliff. In its southwestern corner is a small spring, presently inactive.

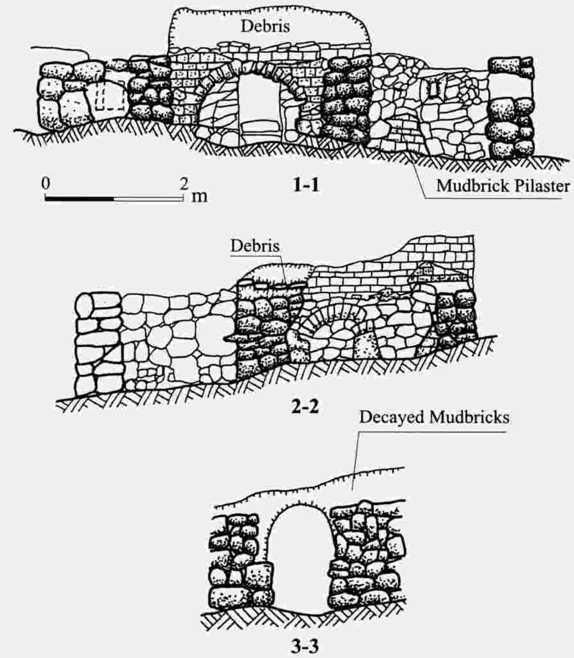
Hermit-Cell. A hermit's cell was found under a large boulder on the western side of the site. The cell, 3 × 2.80 m, has two built walls and was too low to permit



Fig. 22. Deir Abu Mghar, Building A, the upper floor, looking north.



Plan 22. Deir Abu Mghar – plan of Building B.



Plan 23. Deir Abu Mghar – Building B, sections.

standing upright inside; its interior has no subdivision. Sherds of Byzantine pottery were found inside.

Building B (Plans 22, 23)
This is a rectangular structure, measuring 6 m from north to south and 3.75 m wide. It contains two rooms (Rooms 1 and 2). Three additional rooms adjoin the building on the outside (Rooms 3, 4 and 5). The latter apparently constitute a later addition, built while the building was still in use (Fig. 23).

The entrance to the building was in the eastern wall of Room 1 (Fig. 24). The entrance is raised both on the outside, where two steps lead up to the threshold, and on the inside, with three steps descending to the floor of Room 1. Both rooms are roofed with two arches built of well-fired mudbricks, supporting stone slabs, on top of which are mudbricks more than a meter thick (Plan 23; Figs. 25, 26). Two additional arches are found above the entrance to the building and in the doorway leading from Room 1 to Room 2.

Room 1. 2.55 × 1.90 m. Its floor is made of levelled bedrock, whose cavities were filled with hard-packed earth. The average height of the room is only one meter. On top of the arches is a 0.80 m thick mudbrick fill. The northern wall has a window.

Room 2. Similar in dimensions to Room 1, though its support arches were built along the room's long axis, and its average height was 1.60 m. The room had two windows, in the southern and eastern walls (Fig. 27).

The large amount of mudbrick collapse and thickness of the building's outer walls (*c.* 0.80 m) attest that there had been a second floor built entirely of mudbricks. Of the latter, a well-plastered niche has been preserved, located above the northwestern corner of Room 1. It appears that the exceptional thickness of the ceiling in Room 1 was meant to create a level surface with the higher ceiling of Room 2, thus forming a single surface on the floor level of the second floor.

Both rooms in the lower floor were probably meant to serve for cold storage, as they were too low for a dwelling.

Room 3. Built on the northeastern side of the building. This is a small stone room, measuring 1 × 1 m, with a very small opening on its eastern side. This room was roofed with stone slabs and apparently served as a storeroom, or perhaps a chicken coop.

Room 4. Located on the building's western side. It is 2.40 m long from east to west and 1.45 m wide. Its entrance is located on the southern side, and it appar-



Fig. 23. Deir Abu Mghar, Building B, looking east (from the front of Room 4).



Fig. 24. Deir Abu Mghar, Building B, the entrance to Room 1, looking west toward Arch A.



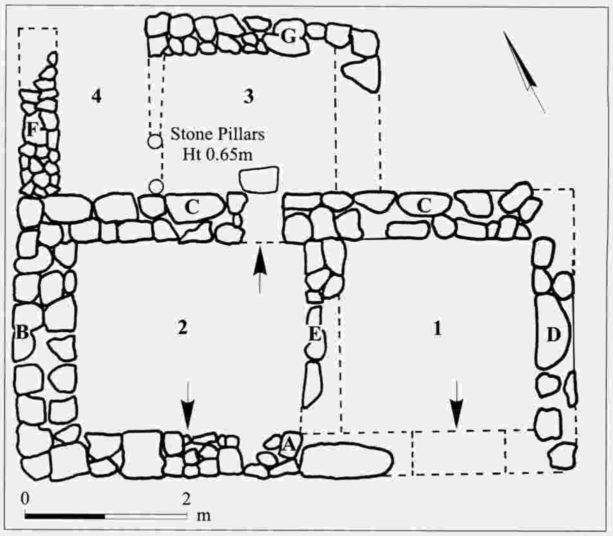
Fig. 25. Deir Abu Mghar, Building B, the northern part of Arch A in Room 1, looking east.



Fig. 26. Deir Abu Mghar, Building B, Arch A from the left and Arch B from the right, looking south.



Fig. 27. *Deir Abu Mghar, Building B, Room 2, looking east.*



Plan 24. Deir Abu Mghar – Building C.

ently had been roofed with wooden beams. The function of this room is not clear, though it might have served as a dwelling.

Room 5. Located in the southeastern corner of the building. Its eastern wall is rounded, and it is entered from the north. This is a very small room, and the only one in the building to be paved with flat stone slabs. It apparently served as a storeroom.

The function of Building B is not sufficiently clear; it appears that this was not a dwelling. The unique setup of the ground floor, and the niche plastered with hydraulic plaster in the second floor, perhaps indicate that the building functioned in some agricultural industry. It may be proposed that the upper floor housed a winepress, while the ground floor served as a winery. Alternatively, this building may have served in the production of manna.

Building C (Plan 24)

This building is located on a raised rock step, about 25 m to the northwest of Building B. This poorly preserved building was built entirely of stone, with double-faced walls ranging in thickness from 0.60 to 0.80 m. The building contained four rooms. Rooms 1 and 2 were built in the initial stage, and Rooms 3 and 4 were added later. The roof was made of wooden beams covered by packed earth.

Room 1. 2.50 × 2.50 m. Though the entrance has not been preserved, it appears to have been in the southern wall (Wall A). The partially-preserved floor was made of plaster. It is possible that there had been a doorway which joined this room to Room 2, but this cannot be determined due to the poor state of preservation of the dividing wall between the rooms (Wall E).

Room 2. 2.50 × 2.90 m. During its initial stage, the entrance was from the south, through an opening 0.70 m wide. However, when the building was expanded to include Rooms 3 and 4, this opening was blocked and a new entrance was opened in the north, leading to Room 3.

The floor was composed of beaten earth.

Room 3. 2.25 × 1.80 m. To the north of Room 2. Room 3 is a later addition to the building, and was entered from the west through a small, narrow, low opening, 0.45 m wide and 0.65 m high, whose lintels have been preserved. The floor is made of plaster, which is thicker and harder than that of the other floors in the building. In the south of the room is a step in front of the 'newly' opened entrance to Room 2.

Room 4. This is the entrance vestibule to the building. It appears that this room did not have a northern wall, and possibly was never roofed. The floor is made of levelled bedrock.

Pottery Juglet from Building C. Despite the poor state of preservation of this building, it yielded many finds, including a small, complete juglet with one handle, as well as numerous sherds of similar juglets (Calderon, this volume). This small juglet has a capacity of only 10 cc. Juglets such as this were found throughout the monastic settlements of South Sinai. The Piacenza Pilgrim 39 relates:

> Between Sinai and Horeb is a valley where from time to time there comes from the sky the dew which they call manna. It solidifies, and becomes like a lump of gum, and they pick it up, and have casks full of it in the monastery. From these they fill little flasks which they give as 'Blessings', and they gave us five pints. They also drink this as a liqueur, and gave us some, which we drank.

These juglets were produced in South Sinai, and are not found outside this region. They possibly served as ampules for this gummy substance. The upper complex in Deir Abu Mghar may possibly have served in the manna industry.

Building C was apparently the dwelling of two monks. During the initial stage, one room served for each monk, and in the second stage, Room 3 was added as a guest room, and Room 4 as a vestibule.

Summary

All the finds recovered in the excavations date to the Byzantine period; though no definitive chapel structure was found, and the site had only one hermit-cell, it should be considered a monastery for the following reasons:

1. The architectural similarity of Building A to ecclesiastic structures at Sigilliya, Deir Antush and ʿEin Najila supports the existence of a chapel (or even two) on the upper floor.
2. The architecture of all the buildings bears no resemblance to the farmhouses found elsewhere throughout the Sinai Heights. The small structures are similar to those known at other monastic settlements in Sinai. Building C is representative of the common, two- to three-room houses which served as a dwelling for a teacher and his disciple.
3. The site is situated in the Freʿa Massif, in the heart of a concentration of monastic sites (see below).
4. The name 'deir' ('monastery') usually testifies to a local tradition preserved over the years.

It seems that this monastery of hermits was inhabited by five to seven monks: two in Building C, one in the hermit's cell, one possibly in Building B, and two in Building A. The cave might have been inhabited as well, along with the possibility that there had been additional cells in the numerous nearby rock shelters, which have not been preserved.

The total agricultural land cultivated at the monastery was 1,320 sq m, with an average of 250 sq m of orchard per monk Additional plots were apparently worked in the small valleys near the complex. If indeed Building B had contained a winepress, then one of the crops was grapes, grown draped over the rock cracks on the slopes.

Site 41: Deir Ojar
5941516260 UTM 1,870 m asl

This is a single, two-roomed structure, with a superb view of Jebel Musa and the summit of Jebel Ojar. A dam built of large stones in a nearby wadi retained high ground for an orchard covering *c*. 700 sq m.

A rectangular prayer niche facing east toward Jebel Musa is located in a rock outcrop near the building (Finkelstein 1981: 89). The short path leading from Deir Abu Mghar to St. Catherine's Monastery passes this site.

It seems that the building was inhabited by two monks, who were affiliated with the monastery at Deir Abu Mghar.

Site 42: Wadi Inshel El-Asfal
5939016440 UTM 1,640 m asl

Seven orchards, covering some 6 dunams, lay along Wadi Inshel El-Asfal. Two adjacent buildings are located in the center of the wadi. Though the larger one is completely in ruins, the remains of windowpane glass and North African pottery sherds indicate that it had been a church. The smaller building, measuring 1.50 × 7 m, apparently served as a dwelling.

On the slopes nearby were three hermit-cells, one in the rock cliff and the other two under boulders.

Up to ten monks are assumed to have inhabited this monastery.

Site 43: Deir Rummana (Freᶜa)
5908516575 UTM 1,620 m asl

Deir Rummana, built of large fieldstones, is located on a rock cliff on the southern bank of Wadi Rummana. The rectangular building, measuring 12 × 14 m, appears to have had two floors, based on the thickness of its walls and amount of collapsed debris. Later construction at the site precludes reconstruction of the building's inner plan. The building is oriented east–west, and its entrance appears to have been from the south.

The finds include pottery and glass dating exclusively to the Byzantine period.

It seems that this building served as the center of a hermit monastery, with at least one of its rooms used for ritual purposes.

In the nearby wadi are several abandoned orchards, alongside those still being cultivated by the Bedouin. A pommegranate tree in the nearest orchard gave the site the name, 'Deir Rummana' (Arabic 'pomegranate'). The orchards cover *c.* 5 dunams, and almost each one contains a well.

Three hermit-cells were found on the granite slopes at the edge of the site.

Near the site, where a steep, narrow ravine drains into Wadi Rummana, is a lime kiln (5903016580 UTM).

Site 44: The Slopes of Jebel Umm Daḥana
5922016650 UTM 1,575 m asl

This is a Byzantine structure measuring 7 m long and 3 m wide; its walls are 0.80 m thick. The building has two rooms and is entered through its southern wall.

On the northern slopes of Jebel Umm Daḥana, some 400 m from this building, are three adjacent hermit-cells.

Four orchards covering *c.* 1.5 dunams are located nearby.

It appears that this site was part of the monastery centered at Deir Rummana.

Site 45: Deir Ḥashwa
5891016675 UTM 1,450 m asl

Wadi Ḥashwa drains the southern Freᶜa Mountains in the direction of Naqb El-Hawa. The stepped path, built of large fieldstones and which leads from Naqb El-Hawa to the Freᶜa monastic settlements, passes through this narrow, canyon-like wadi.

A small spring, Moyat Ḥashwa, occupies an extremely narrow part of the wadi, where remains of a Byzantine building with two preserved floors were discovered.

An external apse is built in the eastern wall of the building, indicating that it had been a chapel.

An additional building was found on the opposite side of the wadi. Though it is difficult to determine its plan, it appears that it too had an apse facing east. This building was built on top of a large boulder, under which was a hermit's cell. Three additional cells were located: two several hundred meters to the north of the site and one to the south.

Further up the wadi's flow path is a Byzantine orchard, which was protected by a dam diverting floodwater from it. This bypass dam, *c.* 15 m long and more than 2 m wide, was constructed of large stones and is one of the largest of its kind in South Sinai. The orchard behind the dam, covering 450 sq m, was watered by a small spring located above the flow path – 'Maᶜin Nada' ('the Spring of Dew').

Site 46: Deir Tarkiba
5907016810 UTM 1,600 m asl

The site is located to the south of Jebel Banat, in Wadi Tarkiba and its tributaries (also called 'Deir Banat').

The site contains a building with three rooms, three hermit-cells, a prayer niche and three orchards, which presently belong to St. Catherine's Monastery.

The central building, built above the southern bank of Wadi Tarkiba against the cliff, contained three rooms and served as a chapel. The long and narrow central room was oriented to the east, and had an apse facing east.

Three built hermit-cells were found *c.* 100 m to the northwest of the building, along the wadi's cliff. Some 100 m from these cells was a well-preserved, semicircular prayer niche, facing east.

The agricultural system included two dams in the wadi, with three orchards above them. The lower orchard contained a large plastered pool, fed by a conduit built along the rock's edge. The water flowing in this conduit comes from a small spring located in the slope near the wadi.

Alongside these three orchards, which cover *c.* 2 dunams, small dams near the site created additional, smaller agricultural plots.

Between this site and Jebel Banat, is Wadi Abu Raᶜala, which contains two additional orchards covering *c.* 850 sq m, and two hermit-cells built in the slopes.

Site 47: Wadi Baṭṭa
5928016910 UTM 1,500 m asl

Wadi Baṭṭa is a tributary of Wadi Nuqra. It is a narrow gorge in the south and broadens to a more moderate ravine in its upper part. In the center of the wadi, above a small waterfall, is a site composed of a single building and an orchard. The building is rectangular, *c.* 6 m long and *c.* 3 m wide. The walls are 0.70 m thick, constructed of dry masonry with two stone faces, filled in between with small stones. The southern wall is built on the rock cliff, and the structure was entered from the east.

Nearby are the remains of an orchard *c.* 25 m long and *c.* 15 m wide, covering 375 sq m. Down the wadi, below the latter, was an additional orchard, *c.* 800 sq m.

It appears that this site was affiliated with the monastery centered in Deir Tarkiba.

Site 48: Wadi Abu Grai
5922016760 UTM 1,550 m asl

Three hermit-cells were discovered under large boulders on the northern bank of the wadi; the cells were internally divided. Many pottery sherds dating to the Byzantine period were found in the cells.

Four orchards are located in the nearby wadi bed.

It appears that this site, too, was part of the monastery centered at Deir Tarkiba.

The Road System at Freʿa

The extensive paved road system at Freʿa is of excellent quality. Four paved ascents rose from the Er-Raḥa Plain and Naqb El-Hawa to Freʿa: one to Jebel Ojar and from there to Deir Abu Mghar; the second from the village of Abu Silla via Naqb Freʿa to Wadi Inshel El-Asfal and Wadi Nuqra; the third to Deir Rummana; and the fourth to Deir Hashawa. An additional ascent, Naqb Abu Zeituna, went up to Freʿa from Wadi Esh-Sheikh on the east.

Summary

The data indicate that the southern Freʿa was inhabited by monks who were concentrated around five monastic settlements: Deir Abu Mghar, Inshel El-Asfal, Deir Rummana, Deir Ḥashwa and Deir Tarkiba. All five are hermit monastic settlements built in wadis and the granite valleys.

A total of five church structures was found in Freʿa, as well as two buildings with three or more rooms, five buildings with two rooms, 23 hermit-cells, and 20,800 sq m of orchards. An estimated 50 monks lived at Freʿa, and each monk cultivated a plot of *c.* 430 sq m.

Monastic Settlements in Wadi Jibal and Jebel Bab

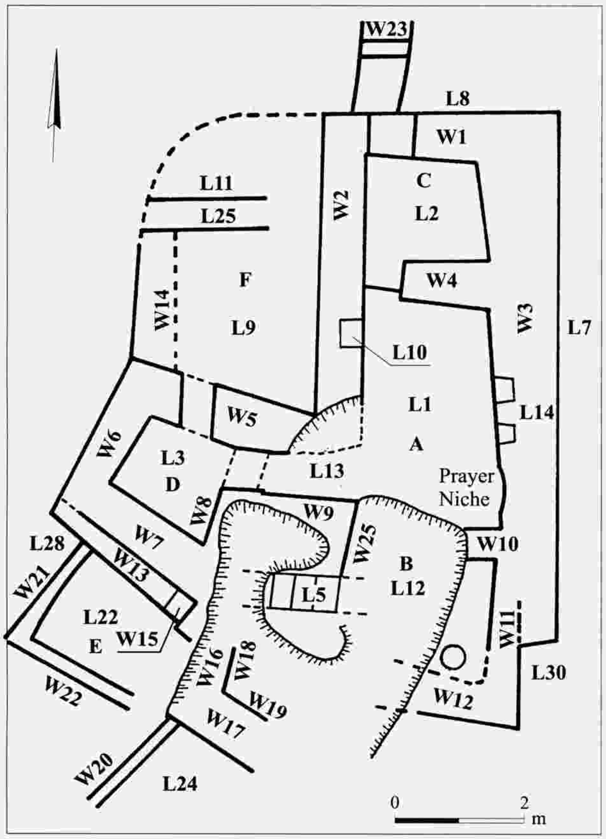
Site 49: The 'Farmhouse' in Wadi Jibal
5863515770 UTM 1,770 m asl

Wadi Jibal is located in the mountains west of Jebel Musa. Its upper part contains numerous orchards. A building was found just where the wadi turns sharply to the northwest under Jebel Bab. Past the group of orchards which are near this building, the wadi becomes very narrow and steep, with pools perennially filled with water. The 'farmhouse', 8 × 10 m, is located on an earthen hill, on the eastern side of the wadi, opposite Naqb Baḥariya, one of the ascents to Jebel Bab. The eastern part of the building had been destroyed prior to excavation, and thus the complete plan is unknown.

When the owners of the orchard decided to erect a new building above the Byzantine remains, a salvage excavation was conducted by A. Goren, the Sinai district archaeologist at that time, with the participation of members of the *Tsukei David* Field School (see preliminary publication of the 1975 season in Goren 1977 [Hebrew]; the 1976 season was never published). The following data were obtained from the field diary and partial field plans of the excavator and his staff, with permission of the excavator.

The building was composed of two floors, the lower chiefly constructed of stone and the upper of mudbrick. As it was impossible to reconstruct the plan of the upper floor, only the ground floor is described here (Plan 25).

Room A (L1). This is the central room on the ground floor, *c.* 7 m long and *c.* 4 m wide. Its eastern wall (W3), *c.* 2 m wide, contains two internal niches and a shallow apse facing east in the southern part of the wall. The apse begins 0.60 m above the floor level, and still stands to more than a meter. The room's walls were preserved to a height of 1.60 m. The walls are covered by two layers of plaster; the apse had been painted with a cross, partially preserved at its bottom. Though the entrance to the room no longer exists, it appears to have been



Plan 25. Wadi Jibal – plan of the 'farmhouse'.

from the south (Fig. 28). The western wall has an additional niche. The opening leading to Room C is found in the western part of the northern wall. Excavation in the room yielded many pottery sherds and fragments of glass, among which were a long, narrow pottery bottle and fragments of glass lamps (see Calderon, this volume; Gorin-Rosen, this volume).

Room C (*L2*). This room, to the north of Room A, has a floor *c*. 15 cm lower than the latter. The entire room, including its threshold, is plastered. A doorway in the northern wall (W1), which led outside, had been blocked and plastered on the inside while the building was still in use. On the floor, near the blocked entrance, were remains of a fire which contained fragments of a plaster window frame; the window itself was made of glass and muscovite (a micaceous mineral, as transparent as glass, found in the rocks of South Sinai.)

Both rooms were extremely well constructed, with thick walls composed of two rows of fired bricks on a stone socle. The bricks were faced on the outside with fieldstones (Fig. 29).

Room B (*L12*). This is the southernmost room, mostly in a state of ruin prior to the excavation. An oven found in the southeastern corner of the room indicates this was a kitchen. Like the other rooms, it too had a plaster floor, which had two phases; the oven belonged to the earlier phase, with the upper layer of plaster covering it.

Three steps descended west from Room B to a small corridor, which led to Room E.

Room E (*L22*). This is an external room with thin walls, which abut those of the central building. It was evidently a later addition (technically or chronologically). The



Fig. 28. The 'farmhouse' in Wadi Jibal: Room A and Room C to the left, looking northeast.



Fig. 29. The 'farmhouse' in Wadi Jibal: top, Room A on the west, Room 4 on the right; bottom, Room C on the west, looking south.

room had a beaten-earth floor, which was lower than that of the rooms to its east.

Room D (*L3*). The level of this room is about one meter lower than that of those to its east. The room is entered from a narrow corridor, which led from Room A. The entranceway was completely preserved, including its upper lintel. The beaten-earth floor bore traces of fire. An entrance leading to Room F was located on the northern side of the room.

This room apparently served as a storage room, due to its low ceiling, small size and thick walls.

Room F (*L9*). This is the northwestern room of the building, shaped like an irregular rectangle. The room is entered from the south, via Room D. The floor is made of beaten earth and the walls are mud plastered. The eastern (W2) and western (W14) walls are of stone, and the southern wall is built of two faces of mudbrick filled in between with packed mud.

The western wall (W14) abuts the northwestern corner of Room D and postdates it. Very little has been preserved of the northern wall of this room.

Summary

All the rooms had been roofed with wooden beams, topped by reeds and beaten earth. The windows in both floors had plaster frames, and glass or muscovite panes. The outer window frame was square, while the glass pane itself was round. The size of the glass varies, with the smaller windows *c.* 10 cm in diameter, and the larger 20 cm and more.

The building adjoins the fence of an ancient orchard. The stone fence is built of dry masonry; the side facing the wadi is constructed of large, heavy stones more than a meter long, meant to prevent floods from destroying the orchard. An ancient well in the orchard has been recently renovated. There were remains of a plastered conduit, which directed water to the various plots in the orchard, as well as to other orchards along the wadi. The conduit, which ran along a small part of the flow path, collected water into a pool in the orchard. Down the wadi's flow path were additional conduits, which led runoff flood water to other orchards. The modern Bedouin do not use this method of irrigation.

Some 100 m from the building, *c.* 40 m above Wadi Jibal, a hermit-cell is built under a giant boulder; the cell is partitioned into two completely separate units. These subcells are larger and roomier than other cells in South Sinai, with the smaller one *c.* 8 sq m, the larger *c.* 14 sq m; the ceiling is *c.* 2 m high. An oven is built in the northern corner of the larger cell.

The excavator designated this building a 'farmhouse' (Goren 1977 [Hebrew]), though also suggesting that the occupants were Christians and might have been monks. In our opinion, this site was a monastery, with the main building serving as its center. Room A contained a chapel, while the main chapel must have been on the upper floor, based on analogy to such buildings at

Sigilliya, Freᶜa, Deir Antush, ᶜEin Najila, etc. The glass and pottery vessels found have parallels at the other monastic settlements in South Sinai, and differ from the characteristic finds from orchards which were not cultivated by monks during this period. The double cell near the building also attests that monks occupied this site.

Site 50: Maᶜin El-Raᶜiyan
5869015740 UTM 1,800 m asl

Wadi Maᶜin El-Raᶜiyan drains into Wadi Jibal some 200 m below the 'farmhouse' at Jibal. In the upper part of the northwestern side of the wadi is a building which measures 9 × 9 m. This building contains eight rooms constructed of fine stone masonry, with two floors partially preserved. The southeastern, eastern and northern parts of the building were plundered by the Bedouin in the 1970s, exposing the white plaster floor of several rooms (Fig. 30).



Fig. 30. The church at Maᶜin El-Raᶜiyan.

One of the side rooms has two openings, separated by a pillar, facing southwest; they lead to a small winepress, which is very similar to that excavated at ᶜEin Najila (see below, Site 52).

The building adjoins an orchard covering approximately one and a quarter dunams.

Some 300 m up the wadi, on its northern bank, are the remains of an additional Byzantine structure, measuring 8 × 8 m. It is built mostly of mudbrick, with an external coating of stones. This structure, too, adjoins an orchard, covering *c.* 2 dunams.

Various Remains in Wadi Jibal

Aside from the 'farmhouse', Wadi Jibal and its tributaries contains many other orchards, which were first cultivated during the Byzantine period. Though no comprehensive archaeological survey was conducted in the wadi, at least four structures of similar plan and size to the Wadi Jibal 'farmhouse' were identified. As no cells or small structures for seclusion were found in the wadi or its slopes, it cannot be determined whether these were farmhouses or monastic settlements.

The remains of the shortest path leading from Mt. Sinai to Raitho can be seen along Wadi Jibal.

Site 51: Wadi Qen
5862515435 UTM 1,720 m asl

Wadi Qen is situated on a geological fault running northeast to southwest. The upper part of Wadi Jibal joins the more northern part of this fault. The wadi is narrow and steep, draining the eastern and southern slopes of Jebel Bab to Wadi Meᶜar.

A pedestrian path of secondary importance passed through the wadi and was the shortest route linking Mt. Sinai with Eṭ-Ṭur.

Along the path, at a spot where the wadi is narrow and steep, are two fine hermit-cells built under boulders. These cells are very secluded and have no related structure or agricultural plot; each has a painted cross. The upper cell has a white cross on the rock face above the cell, while the cross of the lower cell, painted on its wall, is white in a yellow frame.

It seems that two hermit monks dwelled in these cells. They worshipped at the 'farmhouse' in Wadi Jibal or at ᶜEin Najila.

Byzantine and medieval pottery sherds were recovered from the cells.

Site 52: ʿEin Najila
5844015690 UTM 1,940 m asl

Jebel Bab, rising to an elevation of 2,205 m asl, is located on the western side of the mountains which compose the central massif of the Sinai Heights. This is a large mountainous complex, composed of numerous summits and valleys. The spring of ʿEin Najila is the only permanent water source on the mountain. It is located in Wadi Umm Jereidat, which drains extensive parts of Jebel Bab to Wadi Beghabegh on the west. During the Byzantine period, the valleys, slopes and peripheral regions of the mountain were inhabited by numerous hermit monks, who dwelled in cells and cultivated orchards. The monastic center of this activity was the large church structure found on a rock shelf *c.* 20 m west of the spring, which was excavated in 1979 (Dahari 1993: 349).

The complex at ʿEin Najila includes the chapel building, a small fence some 8 m to its north and northeast, and an orchard of *c.* 2 dunams in Wadi Umm Jereidat

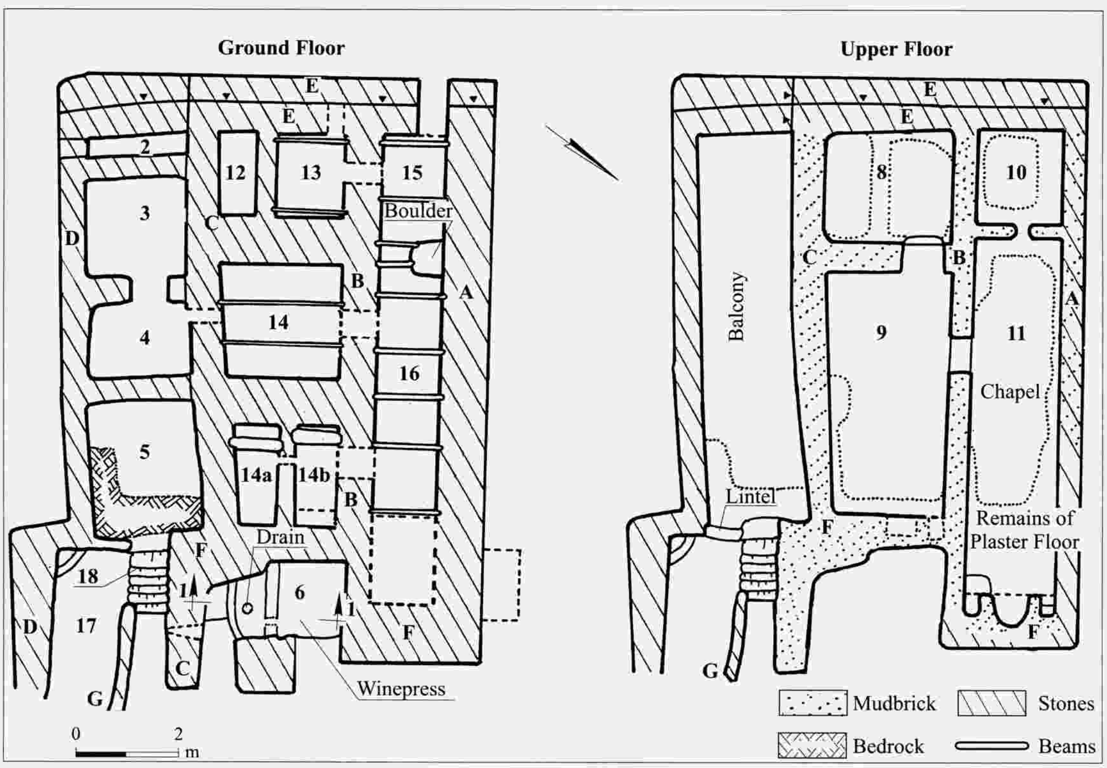
The Chapel Building

This is the central building in Jebel Bab, measuring 12.70 m long and 9.10 m wide (Plans 26, 27), built on the northwestern side of the wadi, *c.* 10 m from it and *c.* 7 m above it. The building is composed of three long spaces. The two northwestern spaces have two floors, while the southeastern space has only one. The walls of the lower floor are made of fieldstones, 0.60–1.10 m thick. The upper floor is constructed mainly of mudbricks, and the walls have an average thickness of 0.50 m. The ground floor contains nine rooms and a winepress, while the upper floor has four rooms, two of which were chapels.

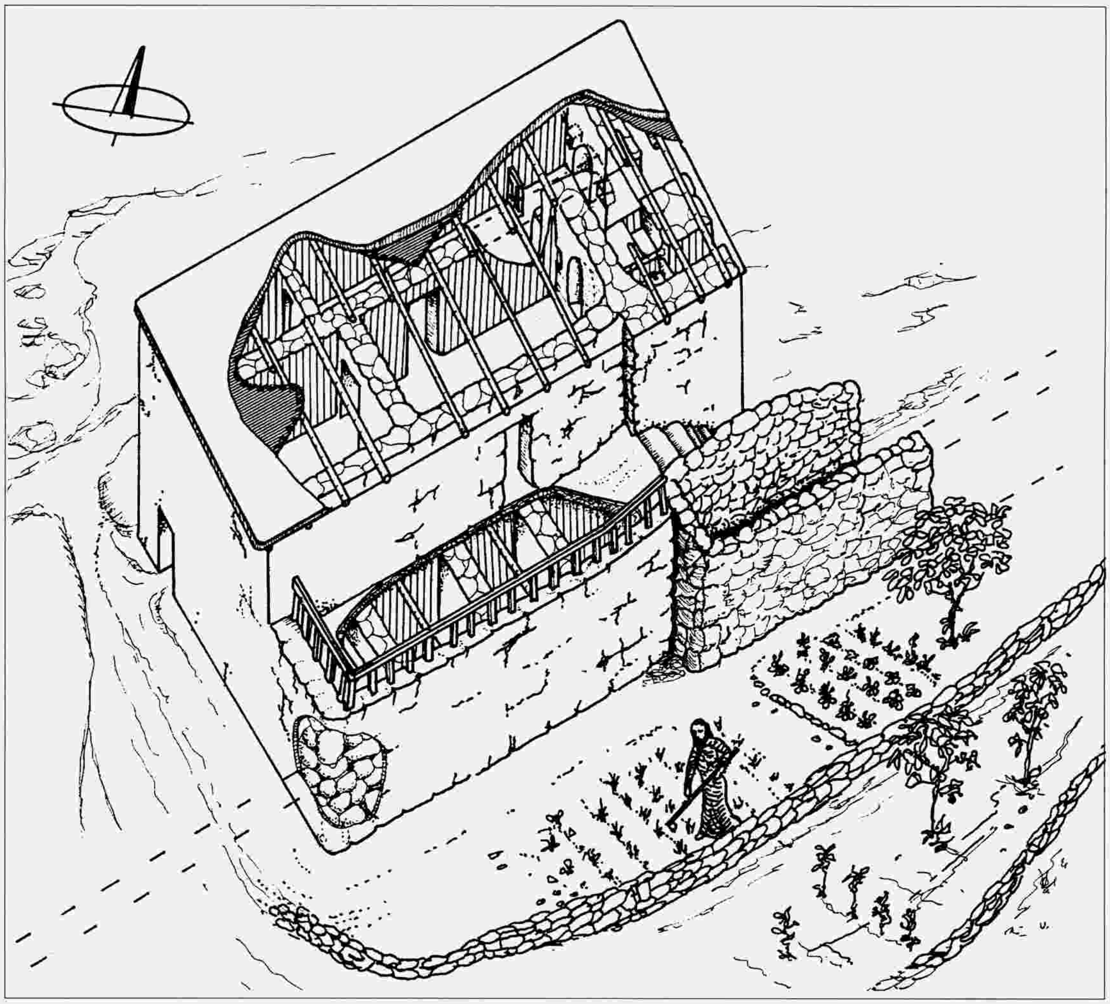
The Ground Floor. This floor has two entrances. The one on the western side of the southwestern wall (Wall E) is 0.60 m wide and 0.95 m high (Fig. 31). This entrance leads to Room 15 (whose eastern part is termed Room 16). From the latter room are three entrances, which lead to Rooms 13, 14 and 14b. A small, raised entrance leads from Room 14 to Room 4, and from there to Room 3.

The second entrance is in the eastern side of the building, adjoining the flight of stairs to the second floor (Fig. 32). This entrance, which was completely preserved, leads only to Room 5.

The winepress is located on the northeastern side of the building, accessed by two entrances.



Plan 26. ʿEin Najila – plan of the church.



Plan 27. ʿEin Najila – isometric reconstruction of the church.



Fig. 31. ʿEin Najila, the entrance to Room 15, looking east.



Fig. 32. ʿEin Najila, steps on the right and entrance to Room 5 on the left, looking west.



Fig. 33. ʿEin Najila, the chapel (Room 11) and Room 16 below it, looking east.

Room 15/16 (Fig. 33): This long, narrow room (1.40 × 10.20 m) is entered from the southwest through Wall E, which was thickened by a stone wall during the course of the building's use. The floor is slightly levelled bedrock. About 2.40 m from the entrance a bedrock boulder juts into the room on its north, dividing it into Room 15 on the southwest and Room 16 on the northeast. The roof is supported by ten olive-wood beams, which were laid across the room at one-meter intervals. Reeds placed on top of the beams were covered by a 0.25 m thick layer of beaten earth. The room was only 1.30 m high. Finds recovered from this room included storage-jar sherds, glass lamp fragments, peach pits and shells brought from the Gulf of Suez or the Gulf of Elat. This room most likely served for storage, with entrances from this room to Rooms 13, 14 and 14b.

Room 13 (Fig. 34): This almost square room measures 1.80 × 1.40 m and is 1.60 m high. A window in its southwestern wall was turned into a niche when the wall was thickened (Wall B). Pottery sherds and glass fragments, as well as olive-wood beams, which had been part of the roofing, were found on the white plaster floor. Carbon-14 analysis of one of the beams (Sample RT-1796) resulted in a 67% probability that the wood dates to 391–462 CE, and a 33% probability of 478–527 CE.

Room 14 (Fig. 35): This square room, 2.40 × 2.40 m, is 1.55 m high. The entrance is from the northwestern side, through a completely preserved entrance in Wall B. The floor is made of thick plaster. The roof was supported by two wooden beams. In the wall opposite the door (Wall C) is a window peering into Room 4. The base of the window is 0.70 m above the floor, and the window is 0.45 m high. This room yielded pottery and glass vessels, as well as square-sectioned metal nails and shells.

Rooms 14a and 14b (see Fig. 35): These are two very small rooms, a mere 2 m long and 0.80 m wide each. Room 14b is 1.45 m high and Room 14a is 1.35 m



Fig. 34. ʿEin Najila, Room 13, looking west.



Fig. 35. ʿEin Najila, Room 9 on top and below it, Rooms 14, 14a, 14b, looking east.

high. Room 14b was accessed through an opening in Wall B of Room 16, while Room 14a was entered by way of a wooden ladder from Room 9 on the upper level. The roof is built of long stone slabs laid across the rooms. Two superimposed windows are found between the rooms. The floor of Room 14a is made of fine thick plaster; pottery sherds and glass fragments were found on this floor. It is possible that the room served an auxiliary function to the chapel in Room 9 (see below).

Rooms 5 and 17 (see Fig. 32): Room 5 is isolated from the other rooms of the building; it is accessed through a separate entrance located between the flight of stairs ascending to the upper floor and Wall D on the south. The room is 2.80 m long, 2.20 m wide and 2.20 m high. Only the eastern half of this room was excavated. The floor is the levelled bedrock. The few finds included some pottery sherds, glass fragments and one shell.

To the east of this room, between Walls D and G, is Entrance Room 17, which apparently was not roofed. The excavation uncovered grape seeds and peach pits, glass fragments and a clay strainer, which belonged to the winepress (see below).

It seems that these rooms were the dwellings of the monk who was responsible for the winepress and its industry.

Rooms 3 and 4: Room 3 is square (2×2 m), joined on its east to Room 4; the room was not excavated.

Room 4 was completely excavated; it measured 2×1.40 m and 2.25 m high. The floor was made of levelled bedrock, and wooden beams supported the roof. A window was found between Room 4 and Room 14.

The compound of Rooms 3 and 4 had no entrance from the ground floor; it appears that a wooden ladder leading from the roof provided access.

Room 4 yielded a relative abundance of finds, including numerous pottery vessels, glass (especially lamps), a small lead chunk, shells and wooden beams. One of these wooden beams (Sample RT-1797), which apparently was not part of the roofing structure, was Carbon-14 dated to 613–689 CE.

Room 12: This extremely small room, measuring 1.70 × 0.70 m and 1.85 m high, was accessed by way of a ladder from the roof of the room above it, Room 8.

Along with the pottery and glass found in the room were a bulla shaped like a stylized cross, an iron belt buckle and a large amount of peach pits. Carbon-14 analysis of the pits (Sample RT-1795) has dated them, with a 4% probability, to 268–274 CE, and a probability of 96% to 337–439 CE.

Room 18: This very small room, entered from Room 17, is located under the staircase.

The room served for storage and yielded a large quantity of grape seeds. A Carbon-14 sample (RT-1789) dates them with a 99.3% probability to 636–705 CE.

The Upper Floor. In the eastern corner, near the southeastern wall of the building, a staircase of eight steps (of which six have been preserved, see Fig. 32) provided access to the roof of the southern space, which served as a balcony for the upper floor. The stairs were *c.* 0.8 m wide, built with a conveniently moderate gradient.

The white plastered porch, about 8 m long and 2 m wide, affords a view to the south of the lower orchard and the summit of Jebel Bab. The entrance threshold from the porch to Room 9 has not been preserved. The entrance had probably been in the center of the long axis of Room 9, based mostly on analogy to the building at Sigilliya and Deir Antush.

Rooms 8 and 9 (Fig. 36): Room 9, measuring 5 × 3.20 m, was in the central space. Its walls were constructed of mudbrick, with the thicker eastern wall containing three niches. The main entrance was from the south, while an entrance leading to Room 8 was found in the northeastern wall.

The floor plaster was well preserved along the edges. This plaster was applied to a layer of well-beaten earth, an average of *c.* 0.25 m thick, which was laid on a wood foundation above the lower floor. On the eastern side of the room, the floor was made of long, flat stone slabs, which served as the roof of Rooms 14a and 14b.

Three niches were built in the northeastern side of Room 9 (Fig. 36). The central niche begins 0.45 m above the floor level, is 0.60 m wide and 0.40 m deep; its height was probably *c.* 1 m, with a rounded top. The niche to its northwest (left) adjoins the western wall of the room. It begins 0.61 m above the floor level, is 0.33 m wide and 0.45 m deep; its height was likely 0.50 m, with a flat top. Flanking the central niche on its southeastern side was a niche, which appears to have been similar to the southwestern niche, though only its base was preserved.



Fig. 36. ʿEin Najila, the base of the niches on the eastern side of Room 9, looking east.

These three niches are not situated in the center of the northwestern wall, but rather adjoining its western side. This is apparently the result of an opening located in the eastern corner of the room, from which a wooden ladder provided access to Room 14a. The opening was on the northeastern side of Room 14a, as its opposite side was roofed with stone slabs.

Though it is not certain, the room with the three niches appears to have been a chapel, while Room 14a served as a small crypt.

Room 8, to the south of Room 9, was a square room, measuring 2.75 × 2.30 m. The floor plaster was preserved in the corners and in the center, above the wall between Rooms 12 and 13 on the ground floor. This room was used for dwelling or storage.

Rooms 11 (*the Chapel*) *and 10* (Figs. 33, 37): The long, narrow chapel, measuring 7.60 × 1.85 m, was entered via Room 9, through an opening in Wall B. In the center of its southwestern wall is an additional entrance leading to Room 10.

The northeastern wall, 1.10 m thick, was built of stone outside and brick inside, and contained three prayer niches. The central niche is rounded (Fig. 37), measuring 0.70 m wide at its base, 1.35 m high and *c*. 0.50 m deep; it begins 0.20 m above the floor. This niche is flanked by two rectangular niches, which begin 0.70 m above the floor; they are *c*. 0.40 m high and 0.40 m wide.

In the eastern corner of the room (under the right niche) is a rectangular platform, measuring 0.60 × 0.50 m, *c*. 0.28 m high. In the corner between the platform and the central niche is a drainage outlet leading to the lower floor. It appears that this drain was related to the platform, where a basin might have stood.

The chapel's floor, made of thick, sturdy, white-washed plaster, was preserved along the walls and in the northeastern side. The latter part of the room was completely preserved, including the wooden beams which supported the roof of the lower floor, which were laid at the end of the fourth or beginning of the fifth centuries CE (see below for dating).

The central rounded niche is clear evidence of the room's liturgical function. This room, as the entire building, was oriented 35° from the north rather than to the traditional easterly direction. This is a result of topographical considerations, which dictated building the structure along the cliff and the wadi below.

Room 10 is almost square, 2 × 1.85 m, located in the western corner of the building; it apparently served as a dwelling. The floor plaster was preserved along the walls.

The Winepress (Plans 26, 28; Fig. 38)

The winepress is located on the northeastern side of the building, outside the thick wall of Room 9 (14). The winepress has two entrances flanking a square pillar: the northwestern one led to the treading floor, while the southeastern entrance opened to the collecting vat. The press had been roofed with wooden beams laid between Walls F and C and the square pillar dividing the en-



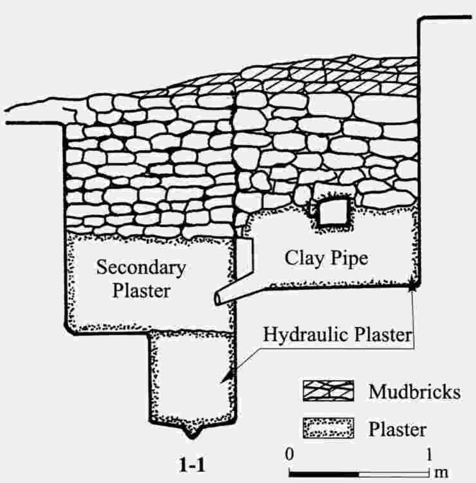
Fig. 37. ʿEin Najila, view of the prayer niches in the chapel and the altar table to the right, looking east.



Fig. 38. ʿEin Najila, the winepress, general view, looking east.

trances. A small, narrow window is located in Wall C on the south.

The small treading floor measured 1.20 × 1.20 m, 0.40 m deep, and was lined with thick, strong hydraulic plaster. In the center of the southwestern wall of the treading floor was a square niche, *c.* 0.45 m above the floor level (Plan 28), which was the catch for the press weight (which crushed the grapes after they were tread on.) The new wine flowed from the treading floor to the collecting vat via a clay pipe, which extended 0.20 m into the vat. This pipe was completely preserved, while the strainer which had been set in its upper aperture was discovered in Room 17 (see above). A 0.30 m thick wall divided the two parts of the winepress; the pipe ran along its base. The collecting vat was lined with thick hydraulic plaster. It measured 1.05 × 0.65 m, and was lower by about one meter than the treading floor.



Plan 28. The winepress at ʿEin Najila – Section 1-1 (see Plan 26).

In its center is a small cupmark meant to collect the dregs of the new wine (Plan 28). A storage jar placed in the collecting vat could have been filled directly from the protruding clay pipe.

Adjacent to the collecting vat, and opposite the southern entrance, is a plastered bench which afforded comfortable seating for the worker, who could tap the new wine with his left hand and fill a storage jar which stood at his feet.

This is the only domestic winepress excavated in Sinai. Similar presses were found at Maʿin El-Raʿiyan, and apparently at Deir Fukarra as well.

The Enclosure

Some 6 m north of the northwestern corner of the building is a rounded fence (*c.* 3 m diam.), whose walls, *c.* 1.60 m high, are built of fieldstones. The enclosure is open to the southeast. No finds were discovered in the fenced area, and its function is obscure.

The Orchard and the Spring

The oval orchard, covering an area of *c.* 2 dunams, is surrounded by a stone fence, into which the chapel building is incorporated. The spring of ʿEin Najila, which served as the inhabitants' water source, is situated on the northern side of the orchard, where the fence crosses Wadi Umm Jereidat. The spring fills a series of pools along the wadi, of which only the lower are found inside the orchard. Thus, this source, the only perennial spring in Jebel Bab, could be utilized without entering the orchard.

The orchard was traversed by several terraces, which created steps perpendicular to the flow path. Floods in the wadi have destroyed the terraces and eroded the soil to the point where it is impossible to reconstruct the inner structure of this orchard.

Summary

A. The complex at ʿEin Najila was a monastic center for hermit monks and covered an extensive area in the valleys of Jebel Bab. Two additional large orchards were located in the mountain's valleys: one at 5853515660 UTM, 1,985 m asl, covering an area of *c.* 2 dunams, and the other at 1,990 m asl, of the same size. Five hermit-cells were found near the church (three under boulders and two in rock shelters). Jebel Bab should be considered a single monastic complex, as there was a chapel only at ʿEin Najila.

B. It seems that a total of 15 monks inhabited the mountain: four to six monks at ʿEin Najila, two in the building

in the additional orchard, five in the hermit-cells, and two to five in cells or buildings which were not surveyed.
C. A total of 7 dunams of cultivated orchards was found on the mountain (aside from the three mentioned above, there are several small plots). Thus, each monk cultivated an average of *c*. 465 sq m.
D. The location of the winepress testifies that cultivating vines and wine production were one of the means of subsistance of the local monks.
E. Numerous peach, plum and almond pits were found in the excavations; these trees were obviously the main crop grown in the orchards.
F. Carbon-14 analysis has shown that by the end of the fourth century, and certainly no later than the first third of the fifth century CE, the complex was inhabited and the trees bore fruit. The building's wooden roof beams indicate a date of 391–462 CE, while the peach pits yield a date of 337–439 CE. The analysis shows that the monastery was inhabited until the beginning of the eighth century CE, based on the grape seeds, which apparently represent one of the latest uses of the winepress; their latest date is 705 CE.
G. It appears that Room 9 was used for prayer as well. Monastic complexes with two chapels are common in Sinai.

Site 53: Jebel Ḥuzeima
6057015480 UTM 1,525 m asl

To the north of Jebel Ḥuzeima, at the juncture of Wadi Et-Thal and Wadi Abu Ḥusheib, is a hill which commands the immediate vicinity. A square Bedouin building occupies the hill's summit. The building measures 4.50 × 4.50 m, with rounded corners and walls two meters high. The entrance, 1.05 m wide and 1.23 m high, faces south; the doorway has a stone lintel. The building contains two rooms oriented east to west.

The Bedouin building is constructed on a large podium measuring 17 × 22 m. The podium actually represents the remains of a very large Byzantine structure, whose walls had stone foundations and a mudbrick superstructure. The podium's stone walls are *c*. 1 m high. However, the Bedouin construction makes it impossible to reconstruct the plan of the earlier building. The stone walls of the podium were *c*. 0.60 m wide, with the eastern wall thicker, reaching a width of *c*. 1 m. This may indicate that the building had been a church, with an inner niche in its eastern wall.

A large quantity of Byzantine pottery was found on the podium, as well as on the entire hill (mainly on its easterly slope). The sherds included ribbed storage jars, cooking pots and some Late Roman Ware. Some windowpane and glass lamp fragments were found as well. (No finds were collected.)

In Wadi Et-Thal, near the building, are remains of agricultural plots which were part of an ancient orchard. Some Byzantine sherds were recovered from these plots.

Near the building, on the slopes of Jebel Ḥuzeima, are four hermit-cells, two of which are used today by the Bedouin for storage.

Though it is not certain, it appears that this indeed had been an isolated monastery, judging by the size and shape of the structure, as well as its finds. The monastery was situated near the road from the Sinai Monastery to Dahab and the Gulf of Elat, along the path in Wadi Naṣib. On the one hand, the monastery was located alongside the path, some 18 km from Mt. Sinai, so that it could have served as a way station. On the other hand, the monastery was not built directly on the path and did not utilize the water sources in Wadi Naṣib, so that there was no unnecessary friction with the Saracens.

Summary and Conclusions

The monastic center around Mt. Sinai covers a very large area. The location of the monastic settlements was determined by agricultural potential (water and cultivable land). Water and suitable land were found only in the wadis and mountainous valleys carved in the red granite. Aside from the monastery at Jebel Ḥuzeima, all the others are built in this Iqna Catherine granite. Holy traditions influenced the location of the monastic settlements only in the immediate vicinity of Mt. Sinai.

Most of the data concerning the size of the monastic settlements and their estimated population is presented in Table 4 (p. 94).

The table summarizes the monastic centers around Mt. Sinai. There are unquestionably more to be found hidden in the mountain valleys in the Sinai Heights, which were not identified in the regional surveys. This data will apparently not alter the picture radically.

Table 4. The Size the Monastic Settlements around Mt. Sinai and Their Estimated Population

	Size of Agricultural Area (sq m)	No. of Prayer Buildings	No. of Large Dwellings	No. of Two-Room Dwellings	No. of Hermit-Cells and One-Room Buildings	Estimated No. of Monks	Agricultural Area per Monk (sq m)
Mts. Sinai and Horeb	29,630	7–13	8–14	10	29	117	253
Ed-Deir, Western Monastery	930	1	–	–	3	5	186
Ed-Deir, Boulders Building	1,100	1?	–	–	–	4	275
Magafa Chapel	1,700	1	–	–	2	4	425
Jebel Ed-Deir (up)	8,000	1	–	4	3	16	500
Sinai Monastery	10,000	2 (at least)	No details	No details	No details	100?	?
Deir Er-Rabba	3,550	1	1	1	2	10	355
El-Bustan	1,600	1	?	?	?	5	320
Wadi Umm Serdi	1,500	–	1	–	2	5	300
Deir El-Arbaᶜin	10,000	1	1	?	?	15	665
Onophrius' Cave	550	–	–	–	1	1	550
Wadi Abu Heiman	480	–	1	–	2	4	120
Deir Fojar	400	–	–	1	–	2	200
Farsh Shammaᶜa	650	–	–	–	2	2	325
Deir Fukarra	2,500*	1	–	–	?	7	357
El-Miliq	1,160	–	–	1	1	3	385
Climacus' Cell	700	–	–	–	1	2	350
Deir Eṭ-Ṭlah	8,000**	1	?	?	2	8	1,000
Outlet of Wadi Shagg to Ṭlah	6,000**	–	?	?	1	6	1,000
Deir Shohat	2,000	–	1	–	2	5	400
Deir Rummana	7,200	1	1	1	5	12	600
Deir Abu Mghar	1,320	1	1	1	2	6	220
Deir Ojar	700	–	–	1	–	2	350
W. Inshel El-Asfal	6,000	1	–	1	3	8	750
Deir Rummana (Freᶜa)	6,500***	1	–	1	6	12	540
Deir Hashwa	450	1	–	–	4	5	90
Deir Tarkiba	2,850	1	–	–	5	8	355
Wadi Batta	1,175	–	1	–	–	3	390
Wadi Abu Grai	1,100	–	–	–	3	3	365
The Jibal 'Farmhouse'	1,600	1	–	–	2	5	320
Maᶜin El-Raᶜiyan	3,200	1	1	–	–	6	530
Wadi Qen	–	–	–	–	2	2	–
Jebel Bab	7,000	1	?	1	5	15	465
Jebel Ḥuzeima	2,200	1?	–	–	4	6	365
Total****	131,745	31	23	25	98	414	318

* The agricultural land of Deir Fukarra includes that of Deir Talaᶜa. ** There are especially large agricultural plots at Deir Eṭ-Ṭlah and at the juncture of Wadi Esh-Shagg and Wadi Eṭ-Ṭlah. The average plot cultivated by each monk is much larger than the average in these regions, apparently the result of this region being relatively low, and the main crop grown – olive trees. *** The remains on the slopes of Jebel Umm Dahana were added to those of Deir Rummana at Freᶜa. **** The data from the Sinai Monastery are not included as (a) there are no archaeological data concerning the remains earlier than the Justinian construction; (b) there are insufficient archaeological and historical data to enable an accurate assessment of the number of monks living inside the walls following the Justinian construction. A mere estimate is several dozens, perhaps slightly more than one hundred.

Monastic Settlements of Jebel Umm Shomer

Following Jebel Catherine, Jebel Umm Shomer is the second highest mountain in Sinai, with its peak reaching 2,570 m asl. Surrounding it are lofty mountains such as Jebel Rumḥan (2,400 m asl) and Jebel Abu Shajara. This rugged, craggy massif has many summits and valleys. The mountains are drained by steep, narrow canyons into several large valleys, which drain westward to the Gulf of Suez, the most important of which are Zeriqiya, Isla and Imlaha.

This massif is geologically related to the Girgar pluton, which is the youngest pluton, composed mainly

of red granite, and similar in its properties to the granite of the Iqna pluton in the region of the Sinai Heights and the Ṣaḥara granite in Serbal.

As a result of the morphological and geological structure of this granite, the limited precipitation drains into the wadis and valleys, and is collected in rock crevices, serving as a relatively plentiful, albeit limited, water source.

Despite its remoteness and inaccessibility, monastic complexes were established in this massif during the Byzantine period. These monastic settlements were situated between the large center at Mt. Sinai and the hermit monastic centers at Raitho. In the present study, these monastic settlements will be treated as a semi-separate monastic entity, connected to the center at Mt. Sinai.

In the comprehensive archaeological survey of the monastic remains in the region carried out in 1978 under the direction of Finkelstein (1985: 60–75), nine monastic settlements were identified (see foldout map at end of this volume). The author excavated three of these sites (Dahari 1993: 345–350).

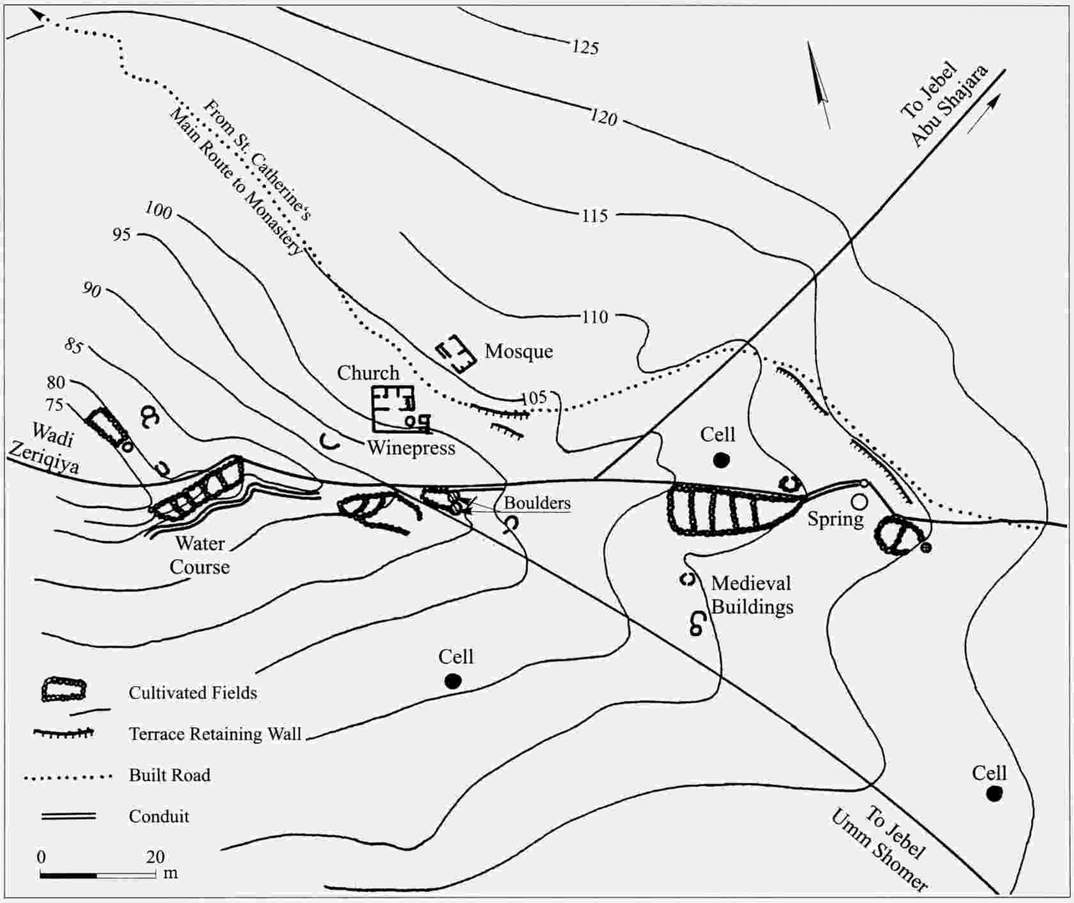
Site 54: Deir Antush
59001396 UTM 1,760 m asl

Deir Antush is located at the head of Wadi Zeriqiya, the upper tributary of Wadi Meʿar, which drains into the Gulf of Suez near the town of Eṭ-Ṭur. The site is built on the northern edge of Jebel Umm Shomer, along the Girgar pluton, in the red granite.

The site is composed of a central structure built of large granite stones, an additional structure, six hermit-cells, a spring and agricultural plots (Plan 29). The central building was re-used in medieval times, with remains of this period found at and near the site.

Burckhardt (1822: 590; 1824: 940) describes the history of the site:

> ...On the side of the mountain, are the ruins of a convent, called Deir Antush; it was inhabited in the beginning of the last century, and according to the monks, it was the last convent abandoned by them. I found it mentioned in records of the fifteenth century in the convent; it was then one of the principal



Plan 29. Deir Antush – plan of the site.

> settlements, and caravans of asses laden with grain and other provisions passed by this place regularly from the convent to Tor, for this is the nearest road to that harbor...

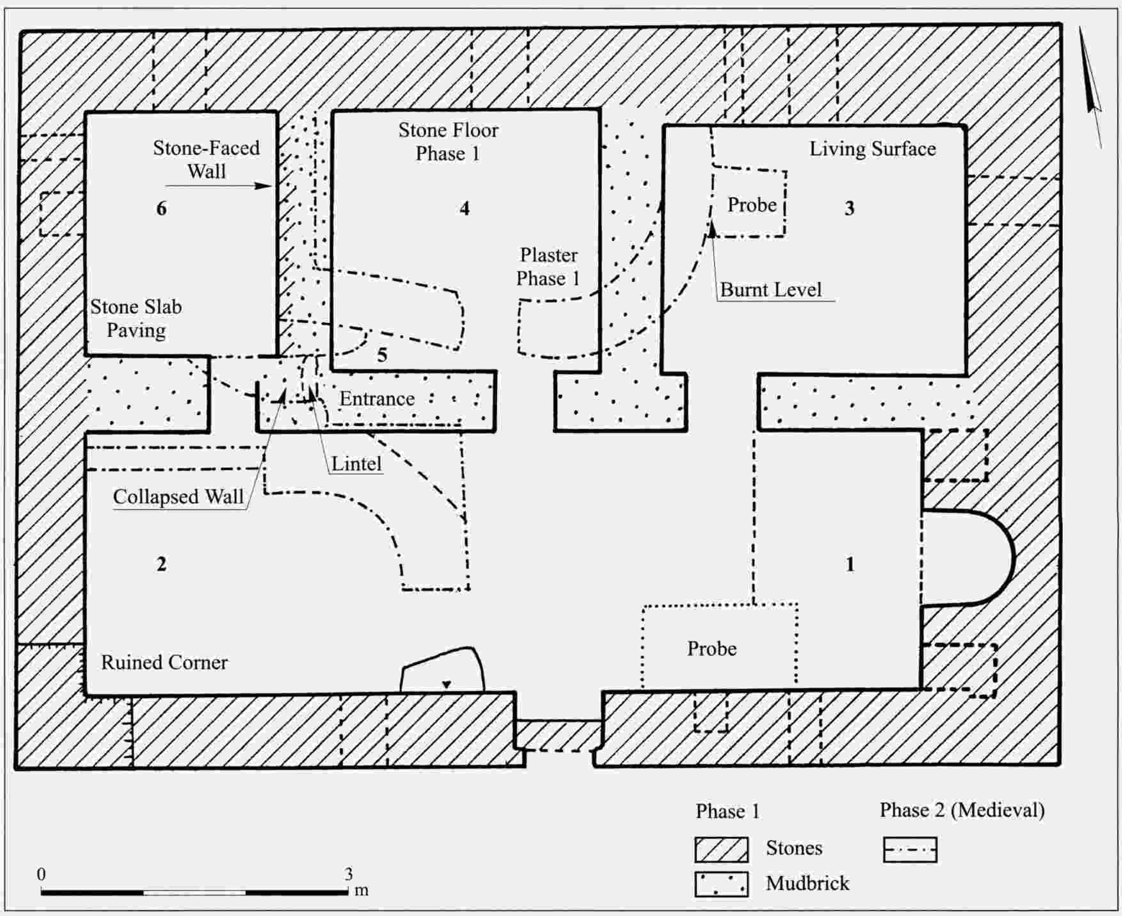
It appears that Burckhardt is referring to Deir Rumḥan (Finkelstein 1985: 64), as the main southern path from the monastery to Eṭ-Ṭur runs past Deir Rumḥan and Wadi Isla, but the archaeological finds prove that the church at Deir Antush was still in use as such in the sixteenth century, and even as late as the seventeenth century! This supports the claim of the monks that this was the last monastery to be abandoned. Thus, it is possible that Burckhardt thought he was at Deir Antush while at the monastery of Deir Rumḥan.

The site is not mentioned in the British Survey of the Sinai conducted by Palmer and Wilson, but is cited by Palmer (1871: 248) and Bar-Daroma (1935: 280 [Hebrew]). The site was more recently surveyed by Finkelstein (1985: 64; Finkelstein and Tepper 1981: 28–31 [Hebrew]) and excavated by the author (Dahari 1993: 345–346).

The Church

The church is rectangular, measuring from east to west (azimuth 100°) 10.20 m, and is 7.85 m wide (Plan 30). It is built of large well-fitted granite stones, some hewn; small stones are set between them on the outer face, and smaller stones on the inner face (Fig. 39). The outer walls are well preserved, *c.* 0.80 m wide, aside from the eastern wall (with the inner apse), which is *c.* 1 m wide. The only entrance is in the southern wall. The building is divided on its long axis into two practically equal spaces; the southern space contains a chapel and the northern space includes three additional rooms. The roof was made of wooden beams, reeds and beaten earth (Plan 31). The building affords a spectacular view of Jebel Umm Shomer (Fig. 40).

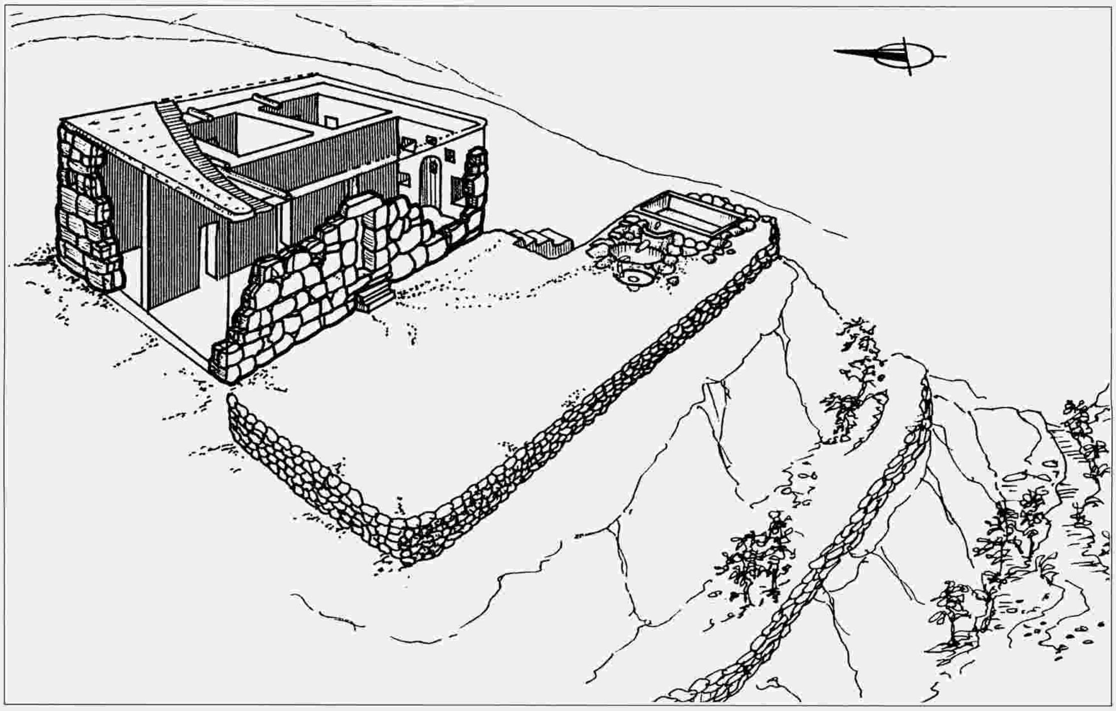
The entrance has been preserved in its entirety, built of large ashlars, with its threshold composed of a monolith (Plan 32; Fig. 41). On the eastern side is the socket for the door's hinge. Flanking the threshold are doorposts composed of three courses, which support the lintel. A socket is located in the eastern doorpost, above



Plan 30. Deir Antush – plan of the church.



Fig. 39. Deir Antush, general view of the church, looking north-northwest.



Plan 31. Deir Antush – isometric reconstruction of the church.

which is the lintel. The entrance is 1.70 m high and its inner width is 0.70 m. The door opened inward, with the gate protruding *c.* 5 cm outward. Grooves and holes were hewn in the stones to enable locking it from inside with the aid of wooden beams. The entrance is raised above the podium on which the structure is built by a step *c.* 1 m high.

The main ceramic finds date from the first period of use, though some medieval pottery was also recovered (see Calderon, this volume).

The Chapel (*Room 1*) (Plan 30). This is a long, narrow room, with inner measurements of 9.85 m (including the apse) and 2.75 m. On it eastern side is a round,

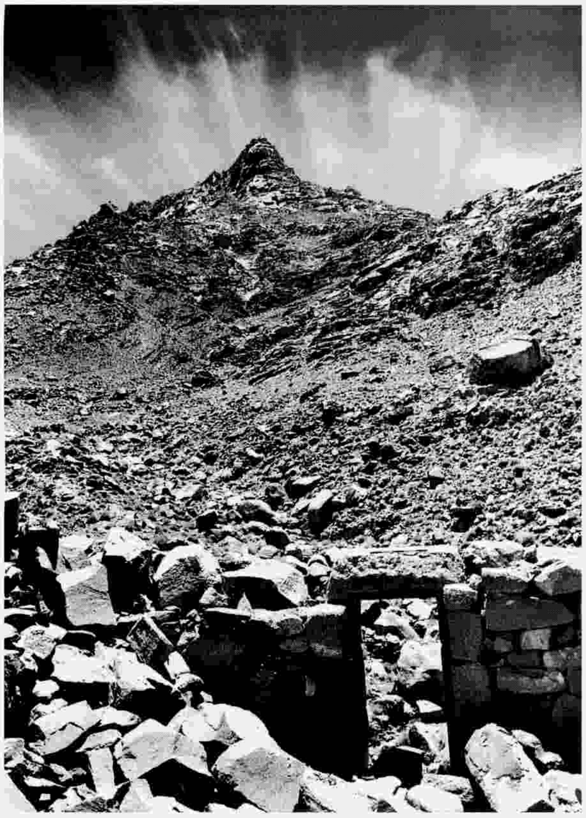
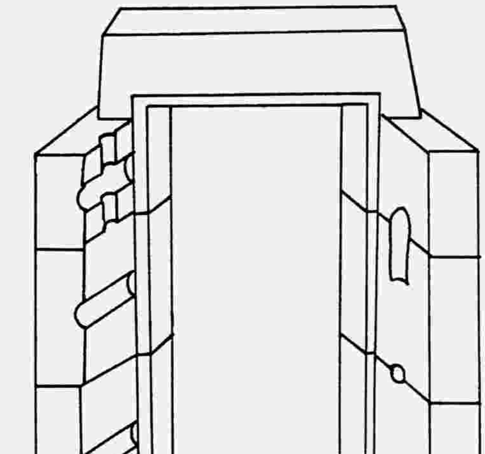


Fig. 40. Deir Antush, the church interior, and Jebel Umm Shomer, looking south.



Fig. 41. Deir Antush, the entrance threshold, looking south.



Plan 32. Deir Antush – entrance to the church.

inner apse, 2.05 m high and 1 m wide. The upper part of the apse contains a small window. To the south of the apse is an additional niche, *c.* 0.50 m wide, 0.80 m high and 0.70 m deep. On the northern side are two superimposed niches, divided by a stone shelf. Above the central apse and the side niches are small windows, which, together with the window in the central apse, form a cross (Fig. 42). The altar is composed of a large, flat stone slab supported by two stones found in the lower part of the apse. This table belongs to the building's second phase of use.

The bema level was 4 cm lower than the base of the apse. On the eastern side of the chapel was a platform, raised above the floor of the central space by 0.26 m. The floor of the room and the bema were composed of well-packed plaster, which was preserved only along the edges, as the floor of the church had been removed during the course of plundering following the abandonment of Deir Antush. Apparently, Bedouin in search of a rumored treasure under the church's floor were responsible for this looting. This destruction makes it impossible to determine whether there had been a chan-



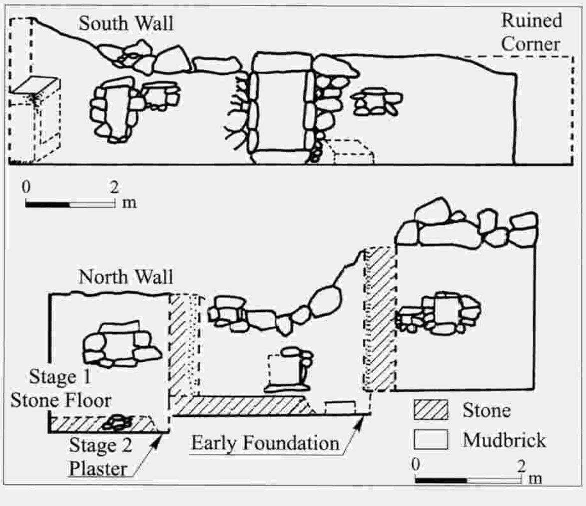
Fig. 42. Deir Antush, the apse and niche in the church's eastern wall, looking east.

cel screen, altar table, ambo or any other furniture on the pulpit.

The northern wall of the chapel is built of mudbricks, 0.55 m wide. There are three openings in this wall, leading to the three rooms built to the north.

Two windows flank the southern entrance. Two additional niches are built to the right of and below the eastern window (Plan 33).

The Northern Space (*Rooms 3, 4, 6*). This space contained three rooms: Room 3 on the east, Room 4 (the largest) in the center and Room 6 (the smallest) on the west. Mudbrick walls divided the rooms from each other and from the chapel.



Plan 33. The church at Deir Antush – sections of the southern and northern walls (see Plan 30).

Room 3 (2.20 × 2.65 m) had a window in the center of its eastern wall, and two additional windows in its northern wall. Room 4 measured 2.65 × 2.85 m, with one window in its northern wall. Room 6, 2.30 × 2.65 m, had one window in its northern wall and a niche in the center of its western wall.

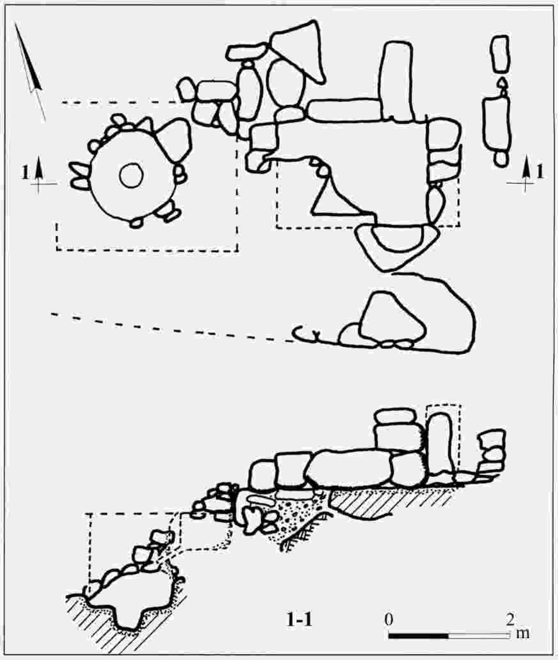
All the rooms had a plastered floor, which was entirely preserved in Room 4, due to a medieval stone slab floor which covered it.

The Medieval Construction (*Rooms 2, 4, 5, 6*). The Byzantine plaster floor of Room 4 was covered by a burnt layer, overlaid by a well-built stone slab floor. Analysis of a carbon sample from this burnt layer – apparently the result of a nomadic campfire lit here following the desertion of the site – proved this to be a branch of an *Acacia raddiana* tree, dating to 897–980 CE (Sample RT-1794), proving the assumption that during this time the site was abandoned.

The few glazed sherds recovered, and our information on medieval Sinai, indicate that the monastic occupation of the site was not renewed prior to the thirteenth century CE, when the eastern chapel was cleaned and renovated, and the present altar table was brought to the apse. Room 2 was built on the western side of the chapel, and in the northern space, small, irregular rooms were constructed of stone, with very small entrances, which were barely passable (Fig. 43). Room 5 was an anteroom leading to Room 6, and to Room 4, which was rebuilt and refloored. The only changes made in Room 3 were in the western wall.



Fig. 43. Deir Antush, medieval construction in the northwest of the church, looking west.



Plan 34. Deir Antush – plan and section of the winepress.

The structure was newly roofed during this stage with cypress beams (Liphschitz 1993 [Hebrew]). A probe under the floor of Room 1, along the southern wall to the east of the entrance, yielded a segment of a burnt cypress beam which was Carbon-14 dated (Sample RT-1792) with a 68% degree of probability to 1514–1602 CE and a 32% degree of probability to 1615–1655 CE. The beam was found under the floor as a result of Bedouin looting after its abandonment at the end of the sixteenth or beginning of the seventeenth century CE. Following this pillage, it appears that monks from St. Catherine's Monastery came and filled the eastern part of the chapel with earth so as to prevent its collapse. This fill, *c.* 2 m high, hid the apse.

The Small Finds: The few small finds recovered included Byzantine pottery, windowpane glass, and pits of plums, apricots, peaches, almonds and dates, as well as square-sectioned iron nails and stone weights. The only medieval finds are glazed sherds.

The Winepress

On the podium in front of the entrance to the church, *c.* 10 m away, was a winepress with a treading surface (1.95 x 2.60 m), sedimentation pit and collecting vat (Plan 34; Finkelstein and Tepper 1981: 28–31 [Hebrew]).

The walls of the treading surface were built of large stones and covered with hydraulic plaster. In its western wall is a hole, 8 cm in diameter, through which the juice drained into the sedimentation pit. Almost nothing was preserved of the latter, but its location is clear. The round collecting vat is found to the west of the sedimentation pit; it had a diameter and depth of *c.* 1.50 m, and was completely plastered. In the center of its floor is a small round depression, 0.30 m in diameter and 0.20 m deep.

The Mosque

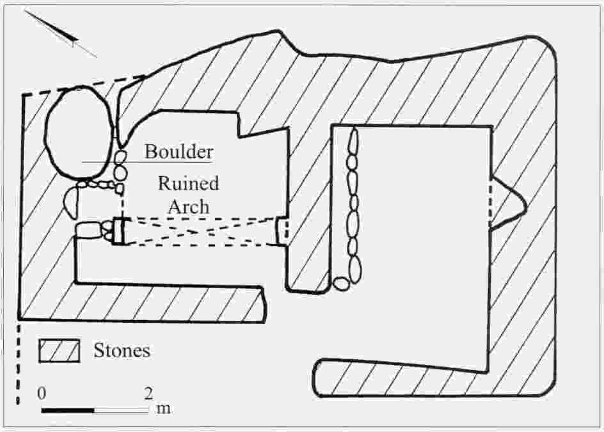
The mosque was originally a Byzantine structure with two rooms, located *c.* 7 m northeast of the church building. This building apparently had been a winery. Following the desertion of the site sometime in the ninth or tenth century, its southern room became a mosque, which was completely abandoned with the renewal of monastic activity at the site.

During its initial phase, the building measured 6.70 × 10 m, oriented southeast–northwest; its entrance was on the west and its stone walls are exceptionally thick (Plan 35).

The northern room (inner measurements 3.40 × 4 m) was roofed with two vaults built of fired mudbricks, of which only the western has been preserved. The vaults had been covered by long stone slabs, over which was a thick layer of beaten earth. A large boulder is incorporated in the northern wall.

The ceiling was at a height of no more than *c.* 1.60 m. The room had no windows or niches, as were common in the dwellings.

Small installations of indeterminate function were built in the northern part of the room following the desertion of the building.



Plan 35. Deir Antush – plan of the mosque.

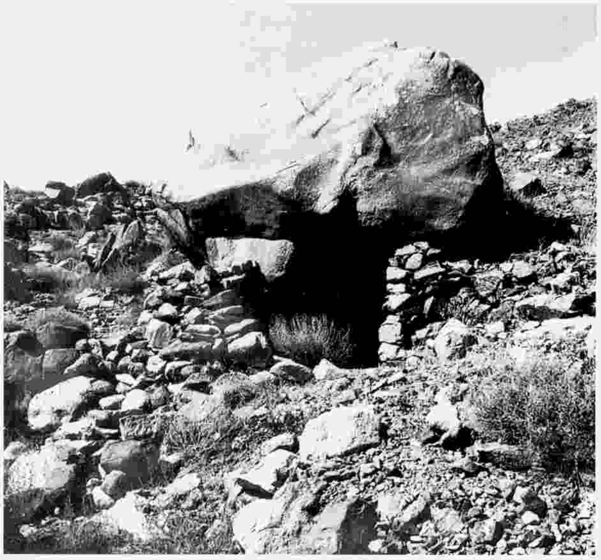


Fig. 45. Deir Antush, Cell C.

The southern room (inner measurements: 3 × 4.50 m) had been roofed with wooden beams and beaten earth. It, too, lacked windows and niches. A long trough was built near the southern wall and contained sherds of Byzantine storage jars.

During the Early Islamic period (Abbasid to Fatimid), a stone-faced inner niche was carved out of the southern wall (a *miḥrab*), turning the room into a mosque facing Mecca (Fig. 44).

The Building's Function. The proximity to the winepress, the thick walls, the lack of windows, the western entrance, the thick vault above the northern room, and the large amount of storage-jar sherds found here all seem to indicate that this building had served as a winery. This is borne out by the similarity to the winepress at El-Karm in Sigilliya, and apparently also Building B at Deir Abu Mghar.

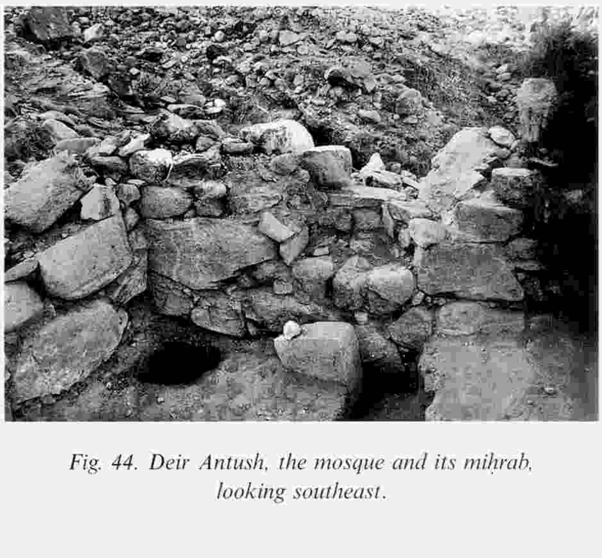


Fig. 44. Deir Antush, the mosque and its miḥrab, looking southeast.

Hermit-Cells (Fig. 45)
In and near the site, six hermit-cells were discovered, all located under boulders and all with at least one built wall. The cells are not mutually visible, but the three central cells have a view of the church. Three cells are located near the orchards, while three others are built on the slopes.

The cells are larger and roomier than those found at Jebel Sufsafa, allowing the occupant to stand erect and to lie flat. One cell, found about 500 m to the west of the site, down Wadi Zeriqiya, had a white-painted cross on its inner wall.

Orchards (see Plan 29)
Several fenced orchards were found along Wadi Zeriqiya, described below from east to west:

The upper orchard, adjoined by a hermit's cell, covers an area of *c*. 50 sq m, and appears to have been the monk's vegetable garden. The monk brought water to irrigate the orchard from the spring, about 15 m from the orchard.

The spring is located *c*. 100 m from the church building. It has a built, plastered conduit extending from it along the southern bank of the wadi to an elongated orchard situated along this bank. This orchard covers about half a dunam, and is divided by terraces into five levels.

Another spring is found in the wadi, about 30 m from the church building. A conduit leads from this spring to two small orchards located along the wadi; the upper orchard covers *c*. 50 sq m and the lower, with three levels, *c*. 200 sq m.

An additional conduit, also built directly on the rock cliff, leads water from this spring to an additional orchard, located down the wadi, *c.* 50 m west of the church building. This orchard had five levels and covers a total area of *c.* 420 sq m.

A further small orchard, also adjoining a hermit's cell, is about 20 m to the northwest of the former orchard. It occupied *c.* 40 sq m and had no irrigation system.

Small terraces and additional cultivated plots were found on both banks of the wadi. The total area of these reached about 100 sq m.

To the east of the complex, between the two major tributaries composing Wadi Zeriqiya, which meet near the church building, is an almost flat fertile field, measuring some 50 dunams. It appears that grapevines were cultivated here. There is no irrigation system to this field, which apparently was sufficiently watered by the winter rains.

The total area of orchards where fruits and vegetables were grown is a mere 1,360 sq m, while there were at least five dunams of land suitable for viticulture.

Summary

A. The plan of the church building at Deir Antush is not common in South Sinai. This building could have served as a fortress, with its massive walls and protected entrance. (The only similar building is that of the church at Deir Rumḥan.)

B. In the Byzantine period, Deir Antush was a hermit monastery inhabited by six to eight monks, whose economic base was the wine industry.

C. The average orchard plot for each monk was *c.* 200 sq m, aside from the land allocated for vine cultivation.

D. While it is not clear exactly when during the Byzantine period the site was established, the total lack of North African pottery, so common at other monastic complexes, may perhaps indicate that this took place later in the course of this period – possibly at the end of the sixth century CE.

E. The site was abandoned after the Byzantine period and was renovated in medieval times. Apparently, St. Catherine's Monastery tended the site until the beginning of the seventeenth century. During this period, it is possible that the donkey path leading from St. Catherine's Monastery to Eṭ-Ṭur passed through Deir Antush and Wadi Meʿar.

F. While the building was abandoned, local Bedouin made use of the ruins, turning the winery into a mosque. It is possible that the mosque was built at the time of the medieval renovation.

Site 55: Deir Rumḥan
59231381 UTM 1,625 m asl

This large and prominent complex, located in the upper part of Wadi Rumḥan, contains a central structure, an additional building with two rooms, pools, orchards and inscriptions (Finkelstein 1985: 65–66 [with plans and illustrations]).

The central building is very similar to the church at Deir Antush. Its length is 12.40 m, its width 9.60 m. The entrance is in the center of the southern wall. The building is built of large and medium-sized local granite fieldstones. Though its inner plan is unknown, it probably was similar to that of the Deir Antush church, attested to by the small windows found in the eastern side of the building, which form a cross.

Similar to Deir Antush, a podium is located in front of the southern part of the building.

Near the southeastern corner of the central building is a large boulder, which was engraved with Latin and Greek crosses, as well as seven Greek inscriptions. The inscriptions are Byzantine, and contain private names, which are carved in the shape of a cross or a monogram (Ovadiah 1985: 77–79). Among the names are Theodolos, Longinus, Theodore, Romanus and Gertianus. Ovadiah maintains that, due to the proximity to the monastery, these were incised by the monks who inhabited the site (Ovadiah 1985: 79). An alternative is that these were inscribed by pilgrims, as the site is built along the main path leading from St. Catherine's Monastery to Raitho. This seems the more feasible suggestion as the phenomenon of monks engraving their names is unknown from any other monastery which was surveyed or excavated in Sinai. On the other hand, such graffiti are common along the pilgrims' paths.

An additional, poorly-preserved building containing two rooms was discovered some 250 m southeast of the central building. This appears to have been the dwelling of two monks. Three hermit-cells were found on the slopes near the site. It is possible that several of the later structures identified at Deir Rumḥan have Byzantine foundations, so that it is impossible to present a complete picture of the Byzantine remains at the site.

Remains of *c.* 11 dunams of orchards are located at and near the site. Water for the monks and the orchards was provided by a well dug into the arcosic soil, along with an impressively built conduit, *c.* 1 km long. The aqueduct led water from a ravine found to the west of the site to a large plastered pool located *c.* 20 m southwest of the main building.

Summary

A. The monastery of Deir Rumḥan was similar to Deir Antush, but it also served as a way station for pilgrims on their way from Raitho to Mt. Sinai.

B. The argricultural system of the site is the largest of all the South Sinai monastic settlements, with orchards covering *c.* 11 dunams, irrigated by a combination of ground water and the collection of runoff flood water

C. The number of monks living at the site is assessed as at least seven. The ratio between the dimensions of the cultivated area and the number of monks is disproportionate. The reason for this appears to be the need to supply pilgrims with food.

D. As at Deir Antush, this site also shows evidence that it was reoccupied during later periods. The present report does not discuss the later remains.

E. It seems that at this site too, the main *floruit* was during the seventh and perhaps the eighth century CE, following the destruction of the town of Pharan, and the relocation of the main road from Egypt to Sinai through Raitho and Wadi Isla, replacing the original path through Wadi Feiran.

F. The monks of St. Catherine's Monastery hold the view that this monastery was the estate of Arseleus (pers. comm.), mentioned by Anastasius the Monk (see below, pp. 23–24). This proposal is feasible, as from Anastasius' *Narrative* 16, we know that Arseleus' estate was near the highest mountain in the desert. Deir Rumḥan is located near Jebel Umm Shomer, which is the second highest mountain in Sinai. It is possible that the Sinai monks viewed this as the highest mountain.

Sites in the Wadi Muwajed Sub-Center

The short path from Raitho to Mt. Sinai passed through Wadi Muwajed. Several monastic settlements were found along the wadi, as well as in the surrounding wadis. Due to the nature of their concentration, they will be discussed here as a sub-center of the monastic center of Jebel Umm Shomer.

Site 56: Farsh Ḥabash
59171351 UTM 1,510 m asl

The site is situated in a steep ravine, which descends from Jebel Rumḥan from the east to the top of Wadi Muwajed. A built path splits from the main path in Wadi Muwajed and reaches the site. The first building seen when arriving at the site by this path is square (4 × 4 m, 1.50 m high), facing southeast and open to the northwest. It appears that this structure is a prayer niche (Finkelstein 1985: 66).

At the upper part of the site is an orchard 25 × 45 m, covering *c.* 1,100 sq m, with several stepped terraces. A small spring flows in the orchard. Nearby are two additional agricultural plots, with a total area of *c.* 400 sq m.

The central building at the site is a chapel. It is built of stone and contains two rooms, with its northern side adjoining the slope and its southern side adjacent to the large orchard. The building is 7 m long and *c.* 4 m wide. The building was entered through the western room, which had two entrances: the main one on the south, with an additional opening in the center of the southern wall, which had been blocked in the course of the building's use. The western wall of this room contains two inner niches.

The eastern room served as the monastery's chapel. It had an externally protruding apse in its eastern wall, flanked by two small windows. The entrance from the western room was in the western wall, which had a small window nearby. The building had three storage niches, two in the northern wall and one in the southern end of the eastern wall.

An additional building with two or three rooms was found on the western side of the orchard.

About 25 m southwest of the orchard, and on a higher level, is a giant boulder on top of a built hermit's cell.

An additional structure, supported by two large boulders, is found in the southern part of the site, in a secondary ravine which drains into it. The building contains two rooms, measuring 2 × 3 m and 1.50 × 2 m. The entrance to the first room was preserved to its lintel, which bears an engraved cross. Near this building is a series of some six terraces which create an agricultural plot of *c.* 450 sq m.

Summary

A. Farsh Ḥabash was a monastery of hermits, inhabited by an estimated seven monks (two monks in each building and one in the hermit's cell).

B. The total area of the agricultural plots at the site is *c.* 1,800 sq m, with an average of 260 sq m for each monk to cultivate.

Site 57: El-Khirbe (Deir Muwajed)
5907013340 UTM 1,100 asl

This complex is located on the western slope of Wadi Muwajed, at the spot where it widens to a fairly level

valley. It sits on the main path from the Sinai Monastery to Raitho during the Byzantine period, which traversed the length of Wadi Muwajed.

The site consists of a central building, agricultural plots and a conduit (Finkelstein 1985: 70). The central building is located *c.* 80 m away from the wadi's flow path. It is built of stone, is oriented northeast to southwest, and measures 12.80 × 10.50 m. Its entrance was in the center of the southeastern wall. Its poorly preserved state does not permit reconstruction of its plan pending excavation. Several steps along the eastern end of the southern wall led up to the building. An additional room adjoined the western corner of the building.

On the slope between the central building and the wadi was a fenced orchard with nine terrace levels, covering a mere *c.* 250 sq m. A water conduit leads to the orchard from a waterfall up the wadi. The conduit ran along *c.* 500 m, built both on retaining walls and directly on the rock face; its width and depth were *c.* 0.30 m. A wider, roofed conduit led from a presently defunct spring which was located near the central building.

Byzantine and medieval pottery was recovered at the site.

Summary

It appears that this site served as a monastery, inhabited by a handful of monks who cultivated the orchards and other agricultural plots nearby along Wadi Muwajed. However, the lack of hermit-cells and excavation of the central structure make this supposition merely conjecture.

Site 58: Shaqif Ed-Deir
5897013160 UTM 1,005 m asl

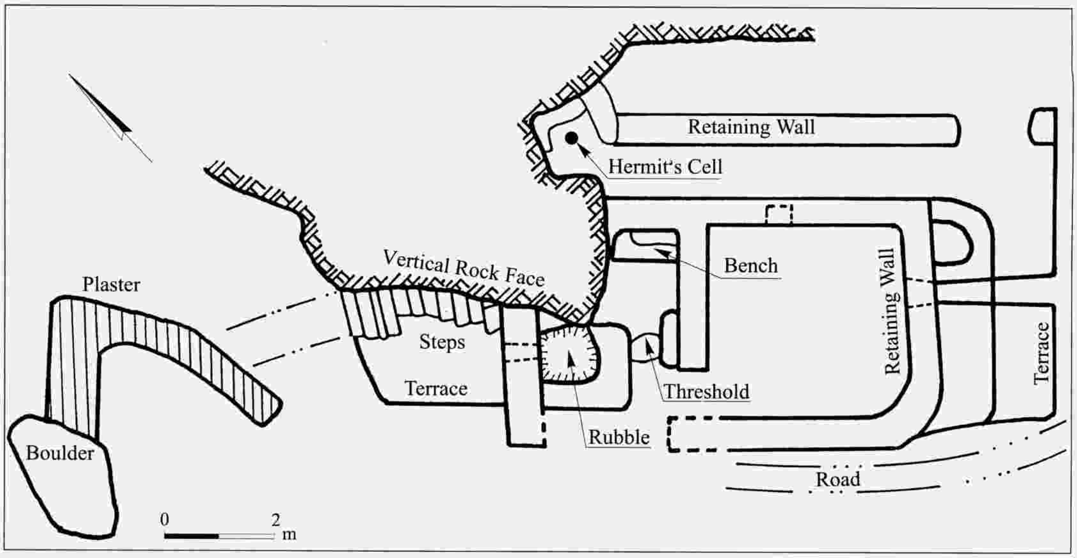
Shaqif Ed-Deir (Arabic 'the Canyon of the Monastery') is the name given by the Bedouin to a steep and narrow wadi which drains the red granite mountain ridge between Wadi Muwajed and Wadi Imlaha to the latter's west. The wadi is 2 km long, with its head at 1,880 m asl and its outlet to Wadi Muwajed at 870 m asl. There are numerous waterfalls and large boulders in the path along the wadi, as well as several small springs.

A small monastic compound is found above the first waterfall, which is 12 m high. This compound was surveyed by Finkelstein (1985: 70–73) and excavated by the author (Dahari 1993: 347–348).

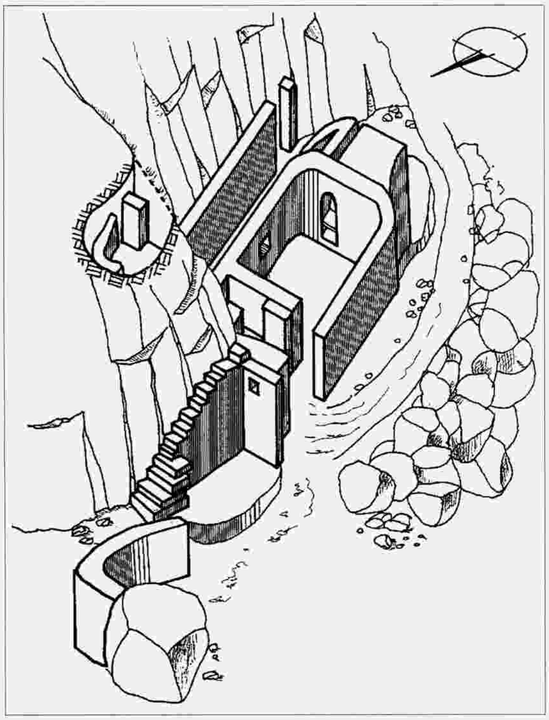
The compound is located where the ravine widens and contains a central building, two hermit-cells, a built, plastered conduit and a built, paved path. This path parts from the main path which traverses Wadi Muwajed, and leads from there to the central building of this compound. The average width of the path is one meter, and it has many retaining walls. The path bypasses the waterfall by way of a retaining wall which is one of the highest to be found in Sinai.

The Central Building (Plans 36, 37; Fig. 46)

This small building was built adjacent to the rock cliff on the northern bank of the wadi. It is 9.60 m long from east to west and is *c.* 6 m wide, including the



Plan 36. Shaqif Ed-Deir – plan of the central building.



Plan 37. Shaqif Ed-Deir – isometric reconstruction of the central building.



Fig. 47. Shaqif Ed-Deir, the eastern room (chapel), looking east.

retaining wall. The entrance was from the south, leading via a small corridor to two openings; one led to the central, eastern room through its western wall, and the other to the western room.

A retaining wall was built about one meter to the north of the building's northern wall as a protection against rockfall from the slope. The narrow area between the building and the retaining wall was roofed, as was the entire building, with wooden beams covered by beaten earth. This space served for storage.

The eastern wall had been reinforced during the course of the building's use by a thick retaining wall, which had an opening left in its center so as not to block the light entering the building through a window in the eastern wall of the eastern room.

The Eastern Room (Fig. 47). This is a square room measuring internally 3.40 × 3.40 m. Its northeastern corner was slightly rounded, and its southeastern corner more so. The floor was made of thick strong plaster,



Fig. 46. Shaqif Ed-Deir, general view before excavation, looking north.

while the walls were covered with white plaster and whitewashed. A rectangular niche was built in the northern wall. Somewhat to the left (north) of the center of the eastern wall are two superimposed windows, separated by a flat stone slab. Both windows were closed internally by a plaster frame which was attached to the wall. The base of the lower window was 0.63 m above the floor, and the top of the upper window was 1.76 m above the floor. The lower window was *c.* 0.40 m high and 0.45 m wide, the upper window *c.* 0.50 m high and 0.40 m wide. It seems that this double window served as a prayer niche, of a type common in Sinai (Tsafrir 1985: 273 [Hebrew]; see discussion below).

The Western Room (Fig. 48). This small room, measuring from south to north 1.80 m and 1.40 m wide, was entered from the south by one step. Three of its walls were made of stone, while the western side was constructed against the vertical rock cliff. Along the northern wall is a sleeping shelf, 1.35 m long, 0.50 m high and 0.58 m wide, built with a pillow on its western side, near the cliff. This shelf was probably uncomfortable as a bed, as it does not allow for lying flat.



Fig. 48. Shaqif Ed-Deir, the western room, looking north.

The Staircase and Hermit-Cell

A staircase with 12 steps was constructed along the cliff to the west of the building, leading to its roof. From here, there was access to a hermit's cell erected in a rock shelter in the cliff above the northwestern corner of the building and retaining wall. This cell is small, about 1.40 m long and 1.10 m wide. A sleeping bench only 1.05 m long was built along its northern wall (see Plan 36). The roof of the building served as a porch for the hermit's cell.

A Structure for Seclusion

About 50 m from the central building, up the wadi on a rock cliff on the northern bank, is a small, one-room structure meant for seclusion (see Plan 37). The structure is elliptic, *c.* 2.50 m long and *c.* 1.80 m wide. The entrance to the cell is through its western side. There is a splendid view of the upper part of the wadi from the structure.

The Spring, Conduit and Pool (Fig. 49)

At a distance of *c.* 50 m from the main building, up the wadi, is a spring with a low water supply. A built, plastered conduit, 0.2 m deep and wide, leads from this spring to the northern bank of the wadi, terminating in a small pool near the main building. Several small retaining walls were found in the wadi between the spring and the main building; behind each such wall was a very small agricultural plot where a tree or two could be cultivated.

Chronology

It is difficult to date the construction of this monastery. The pottery and glass date from the beginning of the fifth to the eighth century CE; thus, it appears that it was constructed during the fifth century, though this cannot be verified.



Fig. 49. Shaqif Ed-Deir, section of the aqueduct.

Following its abandonment, the local Bedouin set many campfires at the site. At some time, the roof beams burnt and the structure collapsed. Two carbon specimens found on the floor were submitted for Carbon-14 analysis, the first from a tamarix tree which was found burnt on the chapel's floor, under the roof collapse. This wood was burnt after the building was no longer used as a chapel, as it is improbable that the monks would have set a fire on their chapel's floor. The results showed that there is a 66% probability that the sample dates to 659–729 CE, and a 34% probablility to 731–770 CE (Sample RT-1805). The second sample (RT-1804) is from an *Acacia raddiana* tree, found in the western room. This too was the result of a fire lit in the room after the building was no longer in use, and before the roof collapsed. The result was 897–936 CE at a 25% probability, and a 75% probability to 940–1026 CE.

In conclusion, Carbon-14 analyses indicate that the building was abandoned at the end of the seventh or beginning of the eighth century CE, and was probably destroyed by fire at the beginning of the eleventh century CE.

Summary

A. The site was apparently inhabited by only three or four monks.

B. The eastern room served as the monks' chapel.

C. The construction of the path leading to the complex was an arduous and complicated task, which must have been undertaken by the monastic establishment rather than by the few monks at the site.

D. There were no agricultural plots at the site, and it appears that it served only as a dwelling, while the agricultural plots cultivated by the inhabitants were located in Wadi Muwajed, where there are several orchards.

Site 59: El-Maᶜin
5902013135 UTM 875 m asl

The site contains a central building, stone fences, a prayer niche and a hermit's cell (Finkelstein 1985: 73).

The central building is situated on a raised terrace, some 10 m above Wadi Muwajed, on the main path which passes through this wadi. The structure, which is presently mostly in ruins, measured 7 × 8 m and was built of large fieldstones; it was entered from the west. Stone fences adjoin the building, including a semicircular fence on its north. The water source is about 60 m from the main building.

About 40 m to the north of this building was an apsidal structure (measuring 3 × 3 m) facing east, which was erected on a large boulder. A hermit's cell built under a boulder was found nearby.

Summary

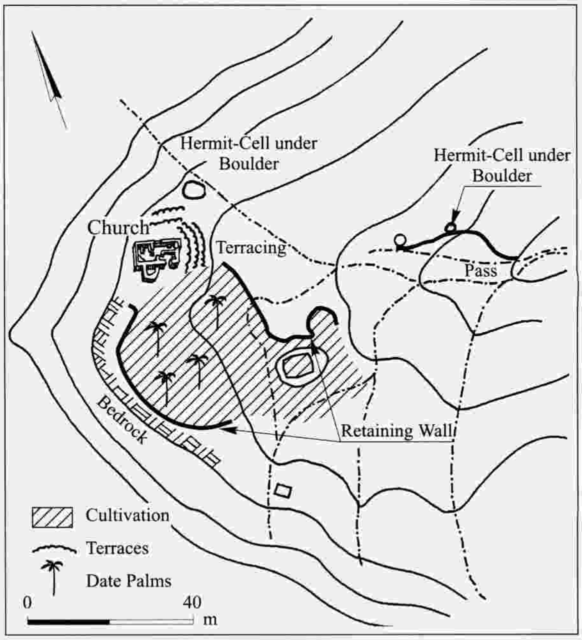
There are two equally viable possibilities as to the function of this site:

A. The cell was the dwelling of a hermit monk, who used the apsidal structure as a prayer niche, while the main building served as a way station (Finkelstein 1985: 73).

B. The main building was the center of a small monastery inhabited by a few monks, who cultivated the small agricultural plots found in the wadi.

Site 60: Wadi Fraᶜiya
58954013045 UTM 980 m asl

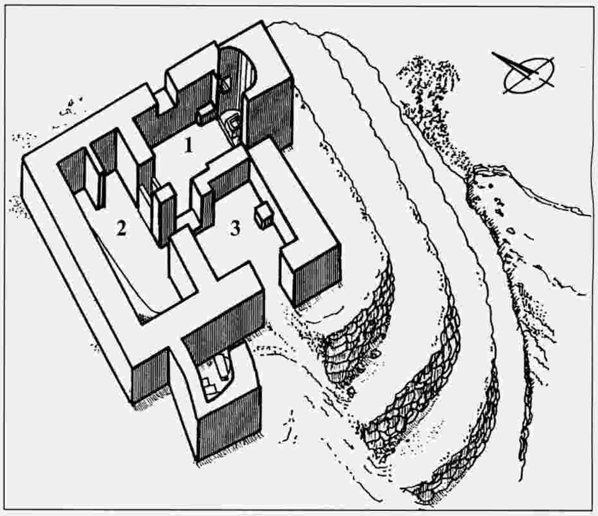
Wadi Fraᶜiya, which drains into Wadi Muwajed from the west, is 3.5 km long and very steep. In the middle of its course, where it is joined by three small tributaries, the ravine widens to a broad, level valley, surrounded by the granite mountains; this is the site of Wadi Fraᶜiya. The water table is high and provides abundant water. A built, paved path leads to the site from Wadi Muwajed; this extremely winding path is constructed on retaining walls along the slopes (Plan 38).



Plan 38. Wadi Fraᶜiya – plan of the site.

Two prayer niches facing east are found along this path, both erected on local watersheds and affording a fine view. One niche is horse-shoe shaped, measuring 2.40 × 2.75 m, with a 0.70 m thick wall (Finkelstein 1985: 90 [No. 20]). The other niche is *ḥet*-shaped, measuring 1.20 × 1.30 m.

In the center of the valley, where a group of date palms presently grows (Plan 38), is an almost completely fenced orchard covering *c.* 2 dunams, two hermit-cells, a lime kiln and a chapel building, which is the central structure of the site. Two additional built hermit-cells are located under boulders near the site. The site was surveyed by Finkelstein (1985: 73) and excavated by the author in 1979 (Dahari 1993: 347).



Plan 39. Wadi Fraʿiya – isometric reconstruction of the church.

The Church (Plan 39; Fig. 50)
The church is located on the northern side of the site, raised *c.* 5 m above the orchard. This is a square building, measuring from east to west 8.10 m and 7.90 m wide. The building has three rooms, with an additional, small room adjoining it on the south. The outer walls are built of medium-sized fieldstones, with an average thickness of 0.80 m. The inner walls are built of mudbrick. The single entrance to the building is in its southern wall. The roof was composed of date-palm beams covered by shorter, tamarisk beams (Liphschitz 1993 [Hebrew]), overlaid by reeds and beaten earth. The collapse does not indicate that there was a second floor.

Four terraces were built to the east of the building, separating it from the orchard.

The Chapel (*Room 1*). The chapel is located on the northeastern side of the building; it is 4.30 m long (including the apse) and 2.30 m wide. The entrance was on the south, through Room 3. On the east (105° azimuth) is an external apse, rounded inside and square outside (Fig. 51). The apse is almost as wide as the entire room, measuring 1.65 m and preserved to a height of 0.70 m. It is probable that higher up there had been a decorated glass window in the center of the apse. Fragments of such glass were found in the excavation of the apse.

On the northern side of the apse was a square niche, which began at the height of 0.55 m above the floor level (Plan 39), and was 0.50 m wide, 0.60 m high and 0.50 m deep. This niche was similar to that found in the church at Sigilliya, and recalls the niches found in some of the chapels surrounding the Justinian church in the Sinai Monastery.

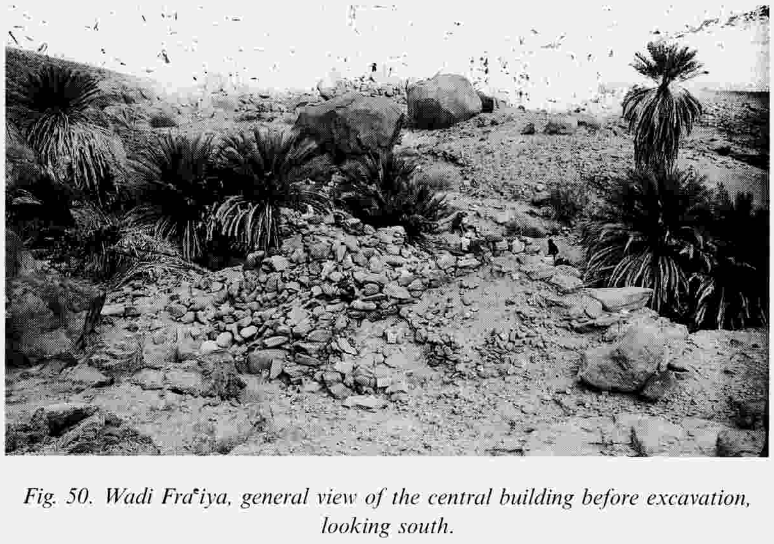


Fig. 50. Wadi Fraʿiya, general view of the central building before excavation, looking south.

The apse's floor was raised 17 cm above that of the chapel. In the center of the apse was a square mudbrick base, which was hollow in the middle. Though its upper part was not preserved, this appears to have been an altar table, with a space below it to reserved to accommodate a reliquarium (Fig. 51). This chapel then commemorated sainted local figure.

In the northeastern corner of the chapel, between the northern wall and the apse, is a rectangular platform. In the west of the chapel is a basin built of large, flat stone slabs, which blocks a gap in the mudbrick north–south dividing wall of the building; this gap was meant to contain the basin. The basin is 0.90 m long and its inner width is 0.45 m; it is 0.25 m deep. Similar basins were found in the excavations at Sigilliya and Deir Abu Mghar. The use of these basins is not clear – either as baptismal fonts, or possibly as hearths. Charcoal from the basin was analyzed, i.e. a branch of a one-year-old European olive tree (Sample RT-1800; Liphschitz 1993 [Hebrew]), dated with a 100% probability to 550–650 CE.

There is a window in the center of the northern wall, containing fragments of glass pane.



Fig. 51. Wadi Fraʿiya, Room 1, prayer niche and base of the reliquarium, looking east.

The room, the apse and the floor were faced with a strong, thick plaster, painted white and red.

The excavation yielded pottery sherds, glass lamps, a rope, an iron nail, a marble fragment, and part of a bronze chain which was used for suspending a glass lamp.

Two Carbon-14 samples were taken from the room, one of a tamarisk roof beam which was part of the collapse found near the apse, and the other from a burnt branch of a young olive tree found on the plaster floor. The first sample (RT-1803) dates to 348–457 CE with an 86% probability, and a 14% probability to 483–509 CE. This sample dates the construction of the structure to the end of the fourth or beginning of the fifth century CE. The second sample (RT-1802) dates the end of the use of the building, as it is a young olive-tree branch found burnt in the middle of the room. It provided a date of 638–718 CE with an 86% probability, and a 14% probability for a date of 741–759 CE.

The Entrance Room (*Room 3*). This is a square room, 3 × 3 m, accessed through the center of its southern wall; two adjacent entrances lead from it, north to the chapel room and west to Room 2. The floor of this room was made of packed mud plaster. A platform *c.* 0.45 m high was built in the center of the eastern wall.

Room 2. This room runs along the entire western side of the building, measuring 6 × 2.40 m. A plastered bench is built along the western side of the room, 4.50 m long and averaging 1 m wide. A wall extending from the center of the northern wall into the room divides this area into two niches (Fig. 52).

The Southern Room. This small room, measuring internally 2.20 × 1.50 m, was built against the southern wall of the building on its western end. It was entered from



Fig. 52. Wadi Fraʿiya, Room 2, looking north.

the east. Three steps adjoining the western wall were preserved; it appears that this had been a stairwell leading to the roof.

Summary
A. The church building was the center of a small hermit monastery.
B. The building was apparently built at the end of the fouth or beginning of the fifth century CE.
C. The structure was probably abandoned during the second half of the seventh or beginning of the eighth century CE.
D. Room 2 was the dwelling of the monk in charge of the upkeep of the church.

An Additional Structure and Hermit-Cells
An additional structure was found on the southern side of the valley, with a stone foundation and a mudbrick superstructure. It is almost completely in ruins, but apparently had contained two small rooms accommodating two monks.

A rounded hermit-cell is built under a large boulder, some 20 m northeast of the church. It was entered from the south and was too low to allow the inhabitant to stand erect.

An additional cell, built in a gap between two large boulders, was found on the eastern side of the site, on the path from Wadi Muwajed to the church (Fig. 53).

Two more cells were found about 200 m from the valley.

A Lime Kiln
A small lime kiln (Fig. 54), 1.20 m in diameter and *c.* 1 m deep, was built near a large boulder. The raw



Fig. 53. Wadi Fraʿiya, hermit-cell.



Fig. 54. Wadi Fraʿiya, lime kiln.

material for the production of lime was taken from the plentiful travertine found in the waterfalls of nearby Wadi Fraʿiya. A similar lime kiln was found at the site of El-Karm in Sigilliya.

The Agricultural System
Aside from the fenced orchard, which covered *c.* 2 dunams, there were another 300 sq m of agricultural plots located along the edges of the valley and on terraces built between the church and the orchard.

The water supply of the monastery was plentifully provided from the high ground water of the valley, as well as from a spring found some 300 m from the orchard down Wadi Fraʿiya.

Summary
A. In an isolated valley in Wadi Fraʿiya, was a hermit monastery, typical of others in South Sinai.
B. It seems that the valley was inhabited by six to eight monks, one in the church, four in the cells, and one or two in the additional structure.
C. The total cultivated area was *c.* 2,300 sq m, providing an average of 328 sq m for each monk.

Site 61: Deir Umm Arad
5939013285 UTM 1,225 m asl

This is a completely remote site, located on the slopes of Jebel Rumḥan, in a narrow ravine with steep cliffs

composed of red granite and diorite, draining southward into Wadi Isla. Meshel (1976: 53 [Hebrew]) and Tsafrir (1970: 5 [Hebrew]) mention the site, which was surveyed by Finkelstein (1985: 66).

The site contains a central structure built of fieldstones, on a large bedrock boulder in the middle of the wadi, as well as a spring and several small agricultural plots down the wadi below the structure. A flight of stairs descends from the structure to the spring and plots (Fig. 55).

This irregular building is 4.70 m long and 3.30 m wide and contains two rooms, supplemented by several indeterminate units on its western side. The interior is filled with collapse. The entrance is not known and it is not clear whether it had a chapel. The southern room contained four extant, square inner niches; it is possible that this room served as a chapel, as its eastern wall is especially thick, which would suggest an inner niche. The protruding external niche in the northeastern wall may have been a prayer niche.

The unfenced agricultural plots are small and presently contain a thick growth of reeds; their total area is *c*. 650 sq m.

Summary

This is a small, isolated monastery, ascended from Wadi Isla by a difficult, narrow path, of which only a few built segments have been preserved. The site was apparently inhabited by two to four monks.

Site 62: Deir Umm Butme
5890013690 UTM 1,550 m asl

This small and extremely remote monastery is in the upper part of Wadi Imlaha, at the foot of Jebel Umm Shomer. The Bedouin name means 'the Monastery of the Mother of the Pistachio Tree'. The site contains a two-roomed structure, a thick retaining wall which protects the building from floods, and a few remains of almost entirely eroded agricultural plots. A perennial spring flows in the wadi near the building.

The central building is constructed on a raised surface, which is reached by a flight of steps, both built and hewn into the granite. The walls were preserved to a height of 2 m, with the eastern room better preserved than the western.

The entrance is in the northern wall of the eastern room. In the center of this room's western wall is a deep niche with a stone shelf dividing it into two; this feature is found in many of the buildings, cells and churches of this period in Sinai. There is a small window in the southern wall. The eastern room measures 2.20 × 2.20 m, with 0.6 m thick walls.



Fig. 55. Deir Umm Arad, looking west.

The western room, built near the path of Wadi Imlaha, is almost completely in ruins, with only its walls extant.

Steps which run along the western wall ascend to the roof. These steps probably led to a second floor, in which there most likely was a chapel.

Although Deir Umm Butme had never been previously surveyed, it appears in Finkelstein's map of monastic settlements in the region of Jebel Umm Shomer (1985: 62).

Though no built path to the site has been preserved, it can be accessed via two difficult routes: one from Deir Antush by way of a saddle between Jebel Umm Shomer and Jebel Imlaha, and the other, yet more difficult, from Wadi Fraᶜiya, crossing the ridges between Wadi Muwajed and Wadi Imlaha. The many steep waterfalls in Wadi Imlaha prevent ascent to the site by way of this wadi.

It is possible that the ancient name of this site was Maloucha, mentioned in *Narratives* 13 and 14 of Anastasius as a rugged, impassable canyon about 40 miles from Mt. Sinai. If indeed this was the ancient name of the site, it has been preserved in the present name of the wadi, Wadi Imlaha.

Many Byzantine sherds were collected at the site, including ribbed storage jars and cooking pots. The pottery recovered was exclusively Byzantine.

Summary

The ceramic finds indicate that this sub-center reached its peak only in the sixth century CE.

This development may be the result of the Arab conquest and the destruction of the Episcopalian town of Pharan, leaving two main centers in Sinai – Mt. Sinai and Raitho. The main path connecting the two centers, which had previously traversed Wadi Feiran, was diverted to the south, while the secondary path which passed through Wadis Sabaᶜiya, Muwajed and Isla, became the main route for commerce and pilgrims, linking Egypt, Sinai, Raitho and Mt. Sinai. The region flourished, and the numerous monks who arrived here established their monastic settlements along this route. (For the prominence of Raitho at the beginning of the eighth century see the papyrus dating to 706–707 CE: Bell 1910: IV 208, *Pap. Aphrod* 1433.)

However, a limited number of hermit monks had previously inhabited the valleys around Wadi Muwajed, as evidenced by the Carbon-14 samples from Wadi Fraᶜiya. It appears that in the early phase (the fifth and beginning of the sixth centuries CE), the monks living in the region were related to the monastic center at Raitho (see below). When the number of monks increased and additional monastic settlements were built (especially Deir Antush and Deir Ruḥman), the monastic colonies concentrated around Jebel Umm Shomer became an independent monastic entity.

Table 5 presents data concerning population estimates among the monks, as well as the size and structure of the monastic settlements.

Table 5. Monastic Settlements near Jebel Umm Shomer

	Size of Agricultural Area (sq m)	No. of Prayer Buildings	No. of Large Dwellings	No. of Two-Room Dwellings	No. of Hermit-Cells and One-Room Dwellings	Estimated No. of Monks	Agricultural Area per Monk
Deir Antush	1,360*	1	–	1	6	7	195
Deir Rumḥan	11,000	1	–	1	?	8	1,375
Farsh Habash	1,800	1	1	1	1	7	260
El-Khirbe	250	1	–	–	?	2	125
Shaqif Ed-Deir	1,250**	1	–	–	3	4	310
El-Maᶜin	–	1?	–	–	–	?	–
Wadi Fraᶜiya	2,300	1	–	1	4	7	330
Deir Umm Arad	650	1	–	–	?	3	215
Deir Umm Butme	1,000	1	–	–	?	3	335
Total	19,610	9	1	4	14	41	480

* At Deir Antush, the *c.* 5,000 sq m used to grow vines for the wine industry were not included in the estimate.

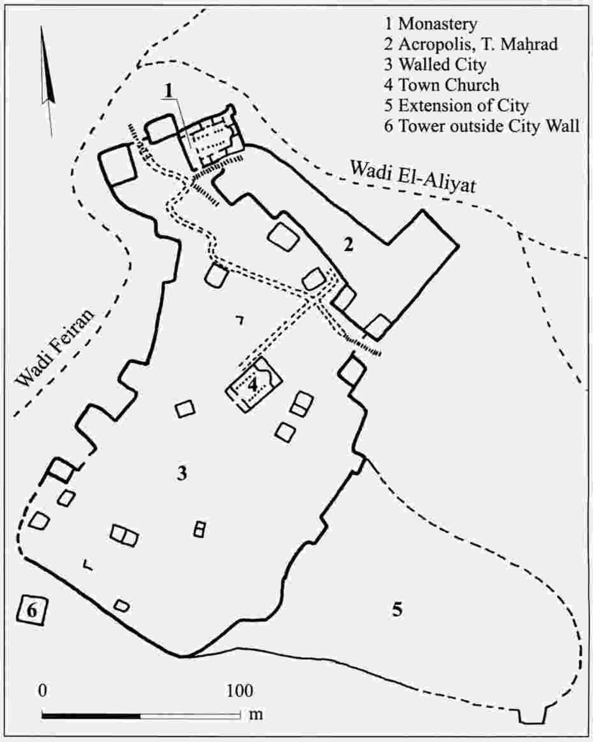
** Most of the agricultural land was not located in the same wadi as the monastery, but rather in Wadi Muwajed.

Chapter 3

The Pharan Center

The large, fortified town of Pharan, situated at the edge of the oasis of Wadi Feiran, gained importance as the sole town in South Sinai (Plan 40). Christian tradition identified the site with biblical Rephidim. Pharan was home to a Council of Elders [βουλε] and a bishop (see Introduction, pp. 15–20).

Aside from the monastic settlements in and around the town, two major monastic concentrations were directly related to Pharan. One was located to the south of Mt. Serbal, in Wadi Sigilliya and its tributaries. The other was to the north of the town, at Jebel Ṭaḥuna. Pharan was considered one of the major centers of Sinaitic monasticism.



Plan 40. The town of Pharan – general plan.

Monastic Settlements in Wadi Sigilliya

Wadi Sigilliya is situated to the south of the Serbal ridge. The wadi drains the southern part of the Serbal, including Jebel Serbal and Umm Taḥa to its east, as well as Jebel Samra to its south. Wadi Sigilliya drains into Wadi Jibaʿ. The valley flows from east to west along one of the largest, youngest, major geological faults in the western part of South Sinai. The Wadi Sigilliya basin is composed of red granite of the Ṣaḥara type.

A monastic complex is found in the wadi and its tributaries and to its south. The isolation of this center – the most secluded in the entire Sinai, though the most beautiful and picturesque – deterred most explorers from reaching it.

History of Research

The first scholar to mention Wadi Sigilliya and its monastic center was Burckhardt (1822: 610; English translation: Gesenius 1824: 966). He ascended the peaks of the Serbal on June 1, 1816, without the aid of a guide, as the price requested for a Bedouin scout was too steep for his pocket. Burckhardt did not descend to Sigilliya, but based his account on the Bedouin's communication, which referred to Deir Sigilliya as a ruined monastery on the eastern side of the Serbal. He relates that the monastery was large and well built, with a perennial water source nearby.

Lepsius (1852: 340, 341) describes the partly-paved path leading up through Wadi Rim, with a two-roomed house at its upper end. Though he, too, did not descend to Wadi Sigilliya, he mentions a monastery there, quoting Burckhardt in a footnote.

The British Survey team (Wilson and Palmer 1869: 215) were the only explorers of the nineteenth century

to have actually visited Sigilliya. Their excursion was fraught with difficulties, as they were unable to approach the site from the west by way of El-Qaᶜ and Wadi Jibaᶜ. They provided a comprehensive description, including the path ascending Wadi Rim and descending Shaᶜab Abu Silam, as well as all the sites of Wadi Sigilliya. Palmer supplemented the information published by the British Survey (Palmer 1871: 211–229).

Ebers (1881: 212–214) also visited the sites of Wadi Sigilliya, though his description does not enhance the archaeological data already proffered by Wilson.

Other researchers describing the sites of Sigilliya at the end of the nineteenth and beginning of the twentieth centuries add little to the descriptions of the British survey team. Most of these researchers did not visit the sites, and offer only secondary information (cf. Weill 1908: 197).

The site was surveyed and two seasons of excavation were conducted in 1979 (Dahari 1993: 341–345).

The Origin of the Name and Its Historical Identification

The name Sigilliya, prevalent among the Bedouin, is not Arabic, and thus it is very likely that the name has been preserved from the Byzantine monastic settlement at the site. The British survey team suggested that the name Sigilliya represented a distortion of the name 'Cecilia' by the Bedouin, maintaining that the monastic center was dedicated to St. Cecilia (Wilson 1869: 287). Ebers and Weill's attempts to identify the site disregard the name Sigilliya, and concentrate on the list of monastic settlements in Nilus' description of the slaughter of monks in the Sinai Heights. Ebers (1881: 408, 409) identifies the site as 'Getrabbi'. Weill opposes this suggestion, and believes this to be Nilus' 'Shelal' (Weill 1908: 197). Neither scholar provides the reasoning behind his proposal.

During the author's excavation at the site of El-Karm, a storage jar was discovered in the collecting vat of a winepress. The inscription on the jar – [ΣΕΓΓΙΣ] Sengis (Fig. 56) – affirms that this was the name of the site, with 'Sigilliya' as its derivative. Alternatively, it is possible that Sengis was a corruption of the name Sergius, which might have been the name of a monk inhabiting this center (Tsafrir, pers. comm.).

Another possibility is that the earlier name of the site was Maloucha, mentioned in *Narratives* 13 and 14 of Anastasius; there Maloucha is described as situated in an arduous, impassable canyon 40 miles from Mt.

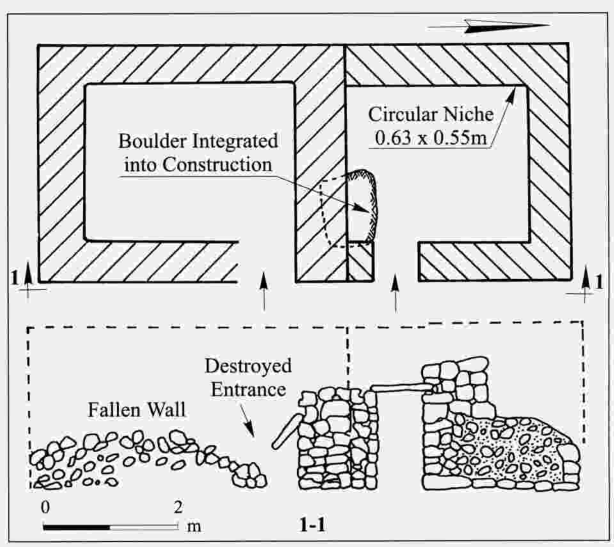


Fig. 56. El-Karm, 'Sengis'-inscribed storage jar.

Sinai (but see above, Deir Umm Butme). This description suits Sigilliya.

The Road to the Wadi Sigilliya Sites

A paved, built path, about one meter wide, ascends from Pharan through Wadi El-Aliyat, passing the watershed of Wadi Rim; there it is joined by a path running from Mt. Sinai by way of Naqb El-Hawa, Wadi Solaf and Wadi Rim. The path ascends Wadi Rim to the watershed between this wadi, which drains into Wadi Feiran, and Shaᶜab Abu Silam, which drains into Wadi Sigilliya. This watershed is the site of a two-roomed rest house, with a prayer niche facing east situated nearby (Plan 41). The structure is located at 56461669 UTM, at an eleva-



Plan 41. The rest house at the watershed of Wadi Rim and Wadi Abu Silem – plan and section.

tion of 1,550 m asl. An extremely steep path, with an average width of 1.25 m, descends from the watershed to Wadi Rim. It is strewn with large boulders, most over a meter long. The width of this path allowed for the simultaneous passage of two laden donkeys. Due to its steepness, the path had steps and massive retaining walls, some more than 4 m high (Fig. 57).

About 110 m above the spot where Wadi Abu Silam drains into Wadi Sigilliya, the path splits into two. One well-preserved route deviates from the wadi and follows the right (northern) slope of Wadi Sigilliya. This path descends moderately to Deir Sigilliya at 56361657 UTM, located on the northern bank of Wadi Sigilliya. This part of the path is 930 m long and is built of smaller stones than the path at Shaᶜab Abu Silam; most of its paving has been preserved.

The other arm of the path continues down Shaᶜab Abu Silam to where the wadi drains into Wadi Sigilliya. After traversing Wadi Sigilliya, the path continues south for another 1,100 m, to the site of El-Karm. This part of the path is well preserved and impressive, with its high retaining walls, which reach 6 m in some places and are built of large stones, some weighing more than 100 kg (Fig. 58). The path crosses several bridges, of which the most imposing is found about 30 m before the end of the path, above Cell A at the site of El-Karm. The path terminates in a flight of steps which descends to the valley in which the El-Karm monastic complex is located.

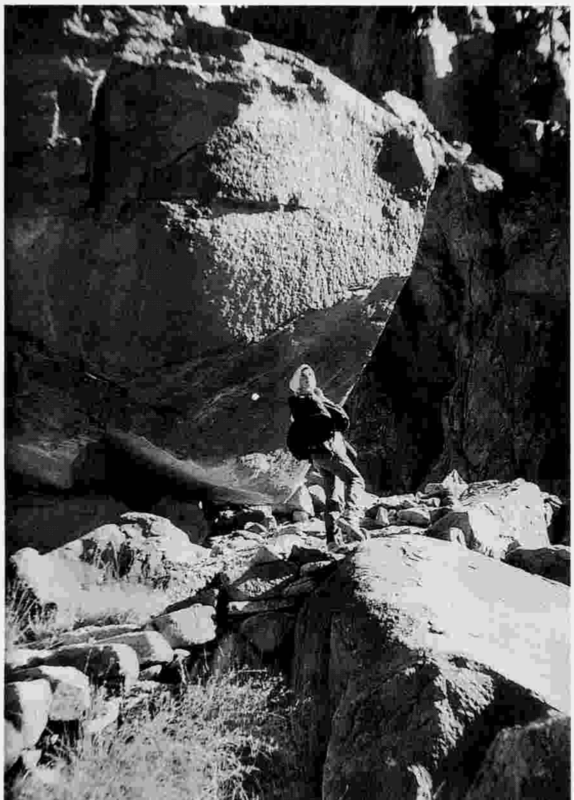


Fig. 57. The paved road to the Wadi Sigilliya sites at Abu Silam.

As mentioned above, the path at Shaᶜab Abu Silam is very steep and has many steps. In two places, the path unavoidably passes under rock shelters or high boulders, which are not high enough to allow for the passage of camels (see Fig. 57). This apparently is evidence that the path was not meant for camel caravans, but rather for pedestrians and laden donkeys. In our opinion, this was the result of the monks' attempt to seclude themselves from the Sinai Bedouin. The monks were not capable of raising and tending the camel, which were used by the Bedouin; they then employed donkeys for transport of their wine jars and wheat bags.

It is not known who planned or built this path. It might have been an official act of the authorities at Pharan. We believe that the monks alone were unable to build such a path, and this project required the involvement of authorities from Pharan or Mt. Sinai.

Site 63: Deir Sigilliya
56361657 UTM 965 m asl

This is a solitary structure, built in a small tributary between Wadi Sigilliya and Wadi Lombardi, about 70 m above the bed of Wadi Sigilliya.



Fig. 58. The paved road to the Wadi Sigilliya sites.

The ruined state of the structure does not permit excavation. The preserved ruins indicate that the building had two floors and was erected on an east–west axis. The walls are built of alternately large and small fieldstones, finely fitted on both faces. The eastern wall was constructed of relatively small stones (Plan 42).

The ground floor had four, perhaps five rooms. The southern wall was completely destroyed and cannot be traced. The eastern room (Room 1) contained a niche 0.65 m high, 0.60 m wide and *c.* 0.70 m deep. The northern wall of Room 2 had a similar niche, 0.55 m high, 0.50 m wide and 0.40 m deep. The floor of Room 3, built of large stone slabs, was partially preserved. Poorly-preserved ruins of a room (Room 4) were found in the northwestern corner. The roof of the ground floor had been made of wooden beams and beaten earth.

A retaining wall to the east of the building was meant to deflect water from the small wadi to the south. About 1 m to the northeast of this wall was an additional retaining wall, built of huge stones, whose purpose was to protect the first retaining wall (Fig. 59).

About 15 m to the west of the structure was a small spring adjoining the cliff towering above the building; this spring was the water source of the building's inhabitants. It is possible that there had been a channel leading water directly to the building, though no traces of this, nor of a cistern, were found.

The building's function is not clear. The niche in the eastern wall possibly indicates that Rooms 1 and 2 served as a chapel. An additional chapel might have existed on the upper floor. The name Deir Sigilliya does not necessarily indicate that this building was a church. In any event, it is clear that this structure was part of the monastic complex of Sigilliya, and served as the central building of the agricultural system there.

Remains near Deir Sigilliya

Four remains have been identified near Deir Sigilliya:

A. A giant boulder (*c.* 5 × 5 m) with a concave top; a flight of steps on its northern side leads to the top, where there is a fine view to the south, toward the lower part of Wadi Sigilliya. Apparently there had been a hermit-cell under this boulder.

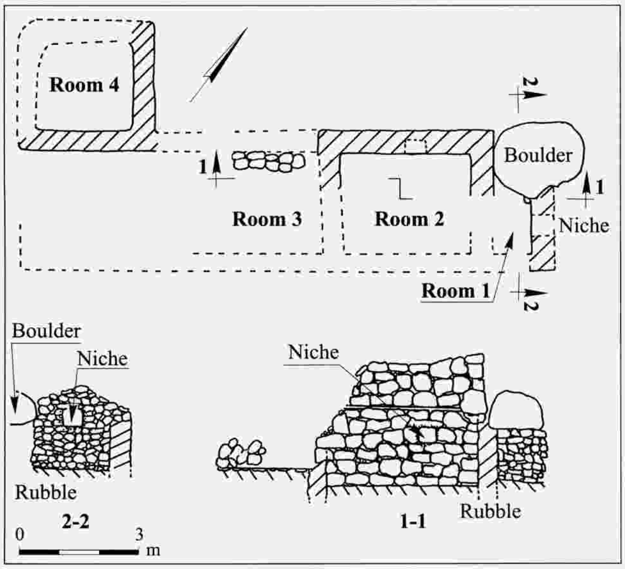
B. Under the latter boulder is a built terrace, with a small, level plot. A built path leads to the boulder and terrace from Deir Sigilliya.

C. A large boulder on top of a small hermit-cell, with several stone fences nearby.

D. About 80 m west of Deir Sigilliya is a stone fence, *c.* 3 m long and 0.80 m high, which blocks the small, local watershed.

Remains in Wadi Sigilliya

The part of Wadi Sigilliya between its juncture with Shaʿab Abu Silam and the spot where it drains into Wadi Umm Baʿatran is a 1.5 km stretch of very steep cliffs, with numerous small springs. Floods have destroyed the remains near the flow path, so that only those on a higher step above the wadi bed have been preserved. Following are descriptions of some of these remains:



Plan 42. Deir Sigilliya – plan and sections.



Fig. 59. Deir Sigilliya, looking east.

An Orchard

This orchard is located on the southern bank of the wadi, about 50 m above the juncture of the wadi which drains Deir Sigilliya into Wadi Sigilliya, at 5639516575 UTM. The orchard covers an area of *c.* 100 sq m, and is located between a vertical cliff on the south and the step above the wadi's flow path. The orchard is terraced, with the southern part higher than the northern part by about one meter. The fences, built of granite stones averaging 0.30 × 0.50 m, have been well preserved to a height of *c.* 1 m.

A Building(?)

On the bank of the wadi opposite the orchard is a rectangular stone fence, 2 m wide and 3.30 m long, whose eastern wall has a slightly curved outer face. The fence is *c.* 0.40 m high, and there is no evidence to determine whether it belonged to a roofed building. Its shape and direction may indicate that it served as a kind of open chapel, similar to the niches found in Sinai or the open Moslem mosques. It may possibly have been a hermit's cell.

A Pool

About 60 m from the orchard, on the southern bank of the flow path, is a pool, partly built and partially hewn into the cliff closing the wadi. The well-plastered pool measures 2.80 m from the cliff to the center of the built wall, and 2.60 m from one end to the other. No conduit leading from the pool to the orchard has been preserved, though it is probable that they had been connected.

A Conduit

A conduit (Fig. 60) led water to the pool; only the final 40 m of this conduit may be traced today. It is impossible to determine whence the conduit received its water. The conduit is built on a steep cliff south of the wadi, where the gradient of the slope is 70% to 100%. The width of the suspended conduit is no more than 0.35 m. It is not supported by a retaining wall, but is constructed along the edge of the cliff, of mud reinforced with small stones, which creates a kind of concrete. The flow path of the conduit is completely smooth.



Fig. 60. Wadi Sigilliya, near Deir Sigilliya – a conduit built on the cliff.

Site 64: El-Karm
5644016545 UTM 1,200 m asl

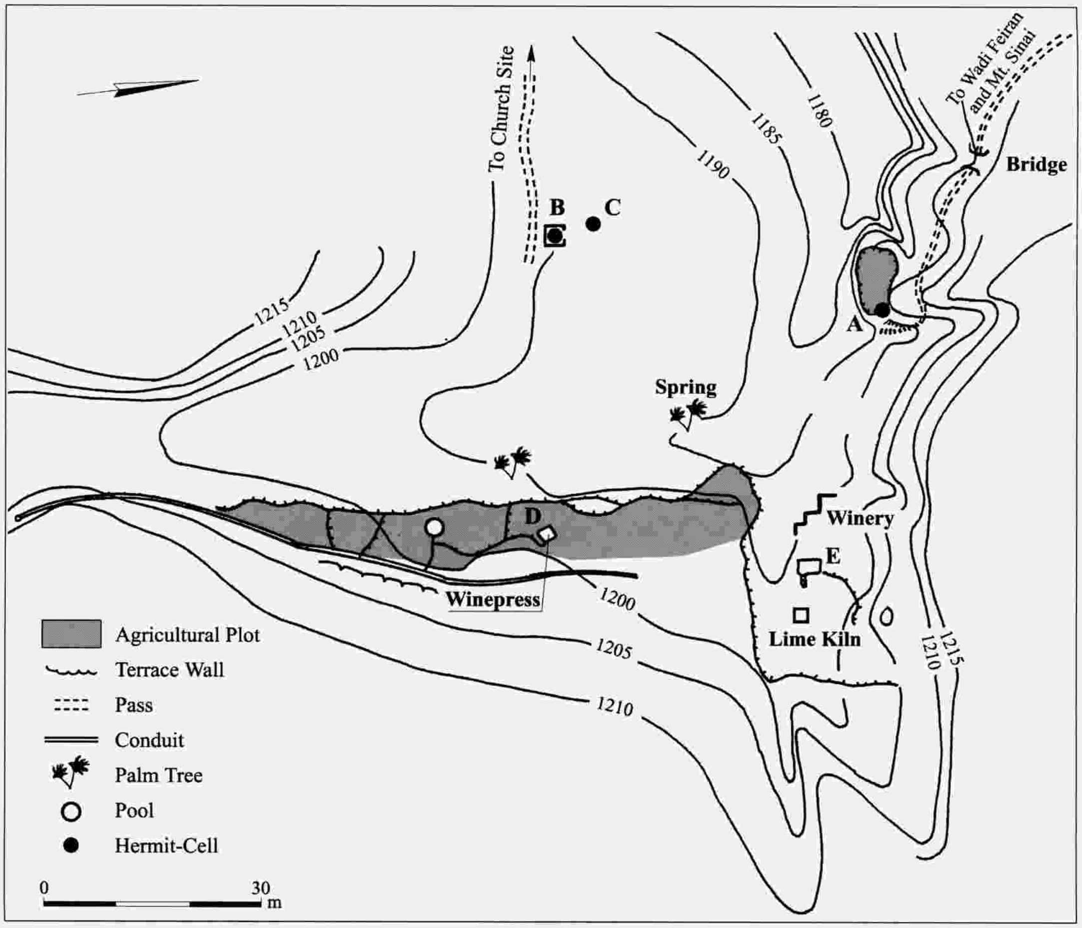
The site of El-Karm is located in a small, narrow valley, covering an area of *c.* 5 dunams (Plan 43; Fig. 61). The valley was created by the confluence of two small tributaries draining into Wadi Sigilliya.

This valley, closed on three sides and open only to the west, is one of the most picturesque to be found in the granite mountains of South Sinai. El-Karm ('the vineyard' or 'the orchard') is the Bedouin name for the site.

A perennial fresh water spring flows in the valley (with a daily capacity of *c.* 110 m^3 in 1979–1980).



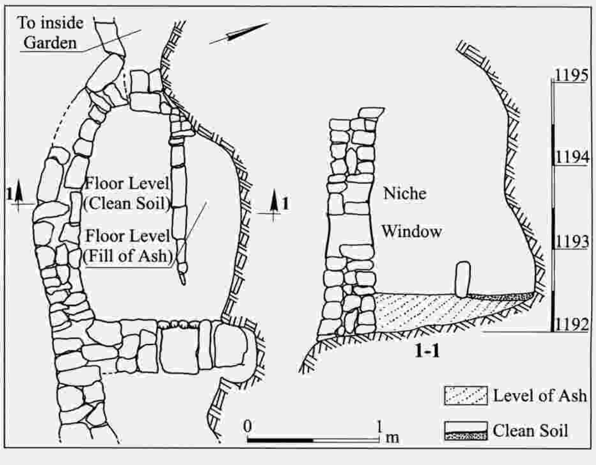
Fig. 61. El-Karm, general view, looking east.



Plan 43. El-Karm – plan of the site.

The site contained a small monastery with four hermit-cells, a conduit leading from the spring to agricultural plots, small pools, a winepress, a winery and a small lime kiln.

Hermit-Cell A (Plan 44; Fig. 62)
In the center of the cliff closing the valley on the north is a large and relatively spacious rock shelter, with a wall blocking its entrance. This created a hermit's cell 2.30 m long and 1.80 m wide. The cell was approached by a flight of flagstone steps, which led to a small vestibule, where a step ascended through a small opening into the cell. A row of stones divides the cell into two long spaces. The southern space served as a monk's sleeping quarters, more than 2 m long and *c.* 1 m wide. Excavation in the northern space, adjoining the cliff, revealed several fireplaces, indicating that this area was used for cooking, as well as heating, during the cold winter months. The floor of both spaces was made of beaten earth.

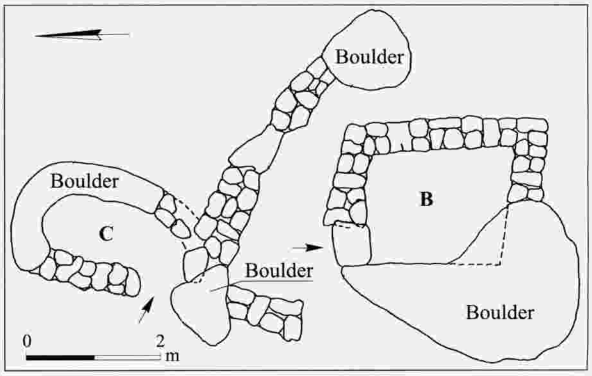


Plan 44. El-Karm – plan and section of Cell A.

In the center of the southern wall, *c.* 0.60 cm high, is a window overlooking the valley. A niche serving as a closet was found above the window.



Fig. 62. El-Karm, Cell A, looking west.



Plan 45. El-Karm – plan and section of Cells B and C.

An additional raised entrance was on the western side of the cell; it led to an adjoining courtyard (10 × 6 m) perched high above the valley. A stone fence built on the edge of the cliff bordered the courtyard and protected its inhabitants. The courtyard afforded a fine view of the El-Karm Valley, the Gulf of Suez and the mountains of the eastern desert of Egypt.

Hermit-Cell B (Plan 45; Fig. 63)

This building is located on the southern side of the El-Karm Valley, near Cell C, and near the path leading to the Church Site. It contains one room, measuring internally 1.85 × 2.10 m. The small entrance on the north has been completely preserved. Such entrances, with an average width of 0.50 m and height of 0.70 m, are often found in Byzantine structures in Sinai (Dahari and Gonen 1982: 36–42 [Hebrew]).

The northern and eastern walls, as well as half of the southern wall, were built of fieldstones on both faces, while the western part of the southern wall consists of a huge boulder. Most of the walls have been preserved to a height of *c.* 1.40 m; the southeastern corner stands 2 m high. The eastern wall has a window.



Fig. 63. El-Karm, Cell B, looking west.

The roof was made of wooden slabs covered by beaten earth. No floor or finds were detected in the building.

Hermit-Cell C (Plan 45; Fig. 64)
This cell is located to the north of Cell B. It consists of a large boulder which creates a roof and two walls, with two additional walls built on the south and west. The cell was entered from the west. The cell was wide enough to accommodate only one person. Its height was *c.* 1 m, which did not allow the occupant to stand upright.

The Orchard
The orchard, on the eastern side of the valley, was divided into seven agricultural plots, arranged in north–south rows. The plots cover an area of 1,180 sq m. The northern plot is the largest, covering *c.* 600 sq m. Each plot is on a different level, with the southernmost plot being the highest, and the others descending from it by an average of 0.15 m each. A sturdy, high retaining wall is found at the west of the orchard, and a low wall, which protected the water conduit and the plots from erosion, was discovered on the eastern side. As opposed to other orchards in Sinai, the Sigilliya orchards were not surrounded by stone fences, as the Bedouin and their flocks did not reach this site, and the monks themselves had no flocks.

Other Agricultural Plots
The spring, which presently flows at the site, is located near the juncture of the tributaries (see Plan 43). Near the spring, down the wadi to the west, are several additional plots covering an irrigated area of *c.* 300 m. It appears that here annual summer crops were grown.

To the west of the winery, between it and Cell A, is a small, additional agricultural plot, whose southwestern retaining wall has been preserved.



Fig. 64. El-Karm, Cell C.

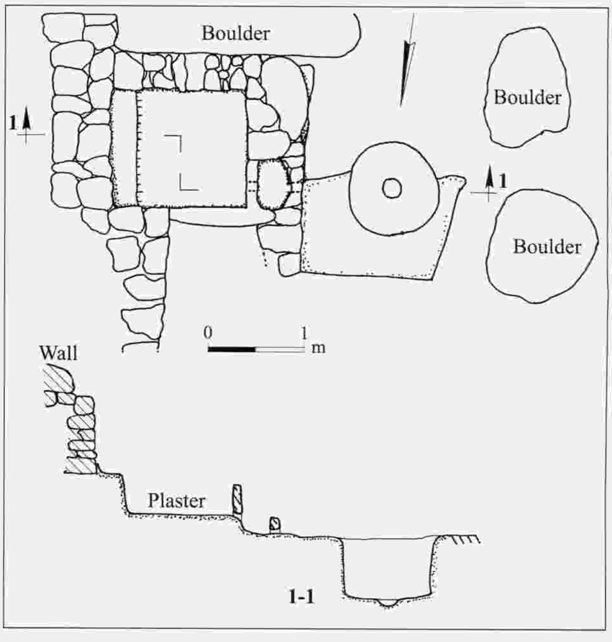
Several smaller plots, each covering *c.* 5 m, are found on the valley slopes.

The Spring, Conduit and Pools
The spring, which fed the conduit and served as the base of the site's agricultural system, is presently dry. It is located in the center of the southern cliff.

A conduit, 0.40 m wide, led from the spring to the orchard. The conduit originally had been built on a retaining wall; after 24 m, the conduit is only 0.20 m higher than the orchard's plots. Narrower branches (0.20 m wide) led from the main line to the two southern plots. The conduit continues north along the eastern edge of the orchard, and after 62 m divides into two main components. One continues north to the large northern plot, while the other reverts west into a large pool adjoined by three smaller pools on its west. The conduit had been plastered, and is partly well preserved. Its average gradient is a relatively steep 10%, which produced a rapid water flow.

A large, square pool was found between the third and fourth plots. It is 2 m wide, 0.55 m deep, has a capacity of 2.75 m^3 and is completely plastered with hydraulic plaster. The three smaller pools to its west are lower and there is no direct connection between them.

The Winepress (Plan 46; Figs. 65–67)
The winepress at El-Karm is located in the orchard. It is composed of three parts: a treading surface, a sedimentation pit and a collecting vat.



Plan 46. El-Karm – plan and section of the winepress.



Fig. 65. El-Karm – a general view of the winepress, looking north.



Fig. 66. El-Karm – collecting vat of the winepress, looking west.



Fig. 67. El-Karm – sedimentation pit of the winepress, looking east.

The Treading Surface. The treading surface is square, measuring 1.15 × 1.15 m, built of stone slabs, and plastered with two layers of thick plaster. Its eastern wall is carved in the rock, while the other walls are constructed from fieldstones. Excavation of the treading surface yielded storage-jar sherds dating to the Byzantine period (see Calderon, this volume).

A clay pipe in the northern part of the western wall directed the juice to the sedimentation pit.

In the center of the southern wall, 0.32 m above the floor, was a depression (0.18 m wide, 0.30 m high and 0.25 m deep), which had served as the base of the pressing beam.

The Sedimentation Pit. A clay pipe which extended from the treading floor led westward to the sedimentation pit, which was *c.* 0.22 m lower than the floor. The pit measured 0.40 × 0.65 m. A round, plastered opening led from the pit to the surface surrounding the collecting vat. As this opening was level with the floor, its effectiveness as a strainer for the juice pouring into the collecting vat was limited.

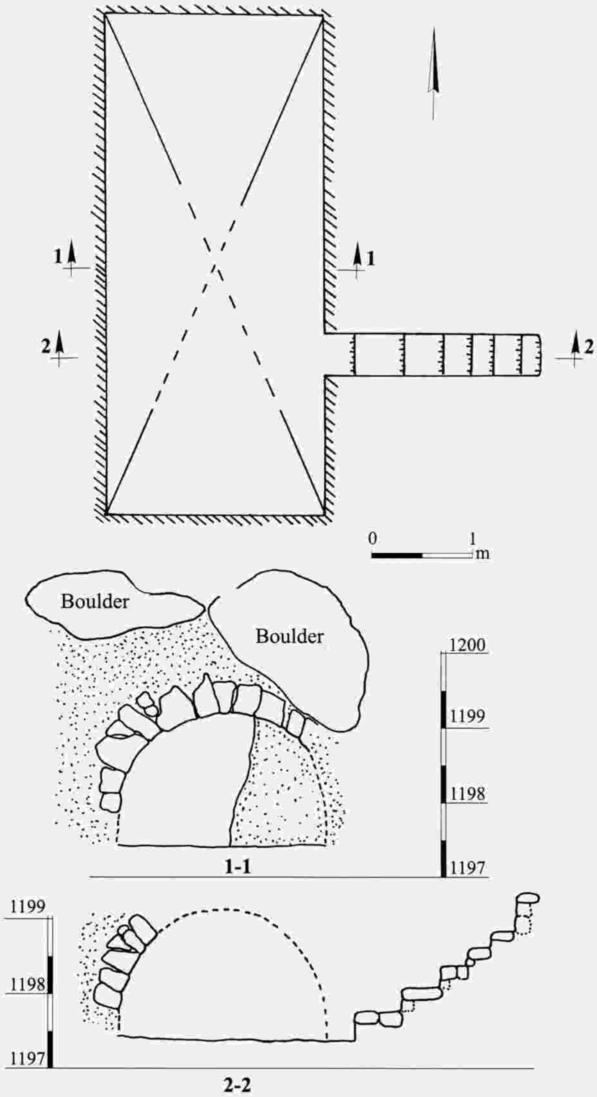
The Collecting Vat. The collecting vat was surrounded by a plastered surface, which was well preserved on the north, but totally ruined on the south. The vat is round, with a diameter of 1.20 m at the top, and 1.05 m at the bottom. It is 1 m deep and has a capacity of 1 m^3. A small central depression in its bottom served to collect the dregs. The vat is well plastered with two layers of impermeable plaster. Two stone steps, which extend from the side of the vat as a kind of shelf, led down into it (see Fig. 66). The upper step is 0.54 m below the top, and the other is at a depth of 0.68 m.

Excavation of the collecting vat revealed remains of four storage jars near its bottom. One jar bore an incised Greek inscription: ΣΕΓΓΙΣ (see Fig. 56). As suggested above, this might have been the original name of the site in the Byzantine period.

The Winery(?) (Plan 47; Figs. 68, 69)
This is a subterranean, rectangular structure, roofed with a barrel vault built of well-fitted fieldstones. The building is 5 m long, 2.10 m wide, oriented on a north–south axis. It was accessed from the east by a flight of six steps, each a single stone slab 0.43 m wide, averaging 0.25 m high.

The maximum height of the underground room is 1.35 m. The room's vault is well preserved on the north, and destroyed on the south. The proximity of the building to the wadi's flow path filled it with erosion. Excavation proved that the structure had not been plastered, and had a beaten-earth floor. A few Byzantine sherds were found on the floor, as well as a large block of raw lime.

The function of this building is not entirely certain. It appears to have served as a winery, as it was underground and had a low ceiling; it is built in the shadiest



Plan 47. El-Karm – plan and section of the winery.


Fig. 68. El-Karm – the winery, looking north.



Fig. 69. El-Karm – stairs to the winery, looking east.

part of the valley. The proximity of the winepress supports its function as a winery. However, it is possible that the building also served to store fruit grown in the Sigilliya orchards, as such cold storage could considerably prolong the preservation of the fruits (Pervolotsky 1980 [Hebrew]).

Lime Kiln(?)
About 3.5 m southeast of the 'winery', a round pit was excavated, measuring *c.* 1 m in diameter, 1.05 m deep. The pit was well plastered with one layer of gray plaster. Burnt stones covered with white lime were found inside.

The identification of the installation as a lime kiln is based on the white stones and the plaster itself, which was totally different from plaster found in other places in El-Karm. This is, however, problematic, as no flue opening was found at its bottom. Several small lime kilns have been found in South Sinai.

Remains near the Valley
Aside from the small agricultural plots scattered along the upper slopes closing the El-Karm Valley, there were two elements which do not appear on the site's plan.

Cell D. This is a small, natural cave, which could have been used for occupation or storage. It is the largest covered spot in the vicinity and could have served as shelter from the rain. Byzantine storage-jar sherds were found in the cave.

A Diversion Canal. The winter rains and erosion from Jebel Serbal Umm Taḥa could damage the orchards below. Thus, aside from the eastern retaining wall of the orchard, a conduit was built to divert the rain and erosion from the orchard to the wadi to its north, near the winery. The conduit runs southeast to northwest.

Summary and Conclusions
A. Only a few monks occupied El-Karm. The remains of four hermit-cells were found, though it is possible that monks also lived on the slopes nearby.
B. No church was found at the site, which was not an independent monastery. It appears that El-Karm was related to a monastery centered around a church (see below).
C. The spring at El-Karm, between the Byzantine period and today, shifted slightly, and apparently provides less water today. This phenomenon was also apparent at the Church Site (see below), as well as at many other sites in South Sinai.
D. As opposed to most other orchards in Sinai, the Sigilliya orchards were not surrounded by stone fences (though it is possible that thorn fences were used). This was due to the absence of shepherds, who did not reach the sites of Sigilliya during the Byzantine period.
E. The winepress, located in the heart of the orchard, seems to indicate that vines for the wine industry were cultivated in this orchard. Possibly, the Sigilliya wine was of such quality that it justified the construction of a massive access path. It is also reasonable to assume that a wide range of fruit trees was cultivated in the orchard, similar to those common in the Bedouin orchards today: such an isolated population needed to produce at least part of its own food. Moreover, grapevines can be grown almost anywhere, without requiring a significant amount of water; thus, vines were probably cultivated on the slopes around the valley. The survey showed that annual plants, which require more favorable conditions, were to be found further up the slopes, above the boulders. There, deeper soil is collected and it is shadier, so that the conditions are more conducive for plant growth. It is possible that the vines were planted in such pockets during the Byzantine period, with their branches supported over the boulders.

The Path from El-Karm to the Church Site

A partly paved path, 700 m long and *c.* 1.20 m wide, leads from the south of the El-Karm Valley to the Church Site. The path is moderate and convenient, with practically no retaining walls; at certain spots the rock was levelled and paved. In its center – where it crosses the watershed,



Fig. 70. Sigilliya, prayer niche on the road between El-Karm and the Church Site.

between the wadi draining El-Karm and the wadi draining the Church Site – is a prayer niche facing east (azimuth 95° to the southern summit of Jebel Serbal Umm Taḥa, its vertical cliff towering over the prayer niche and above the Church Site, Fig. 70). The rectangular niche was constructed of four courses, *c.* 0.50 m high, with an inner width of 0.90 m and depth of 1.20 m; both of its faces were built of fieldstones. The northern and southern walls are *c.* 0.65 m thick, and the eastern wall is 0.75 m thick. (For a discussion of prayer niches in Sinai, see Finkelstein 1981: 81–91.)

Several meters away from the niche, along the path, are two black rocks, which differ from the indigenous red granite. These rocks bear crosses incised by the monks (Fig. 71).



Fig. 71. Sigilliya, stone incised with crosses on the road between El-Karm and the Church Site.

Site 65: Sigilliya, the Church Site
5640516495 UTM 1,160 m asl

The Church Site is located in a valley which covers a total of about 5 dunams; this tract is formed by the broadening of the valley which descends from Jebel Samra to Wadi Sigilliya (Plan 48). The valley contains remains of a large orchard, with a presently dried-up spring at its center. To the north of the orchard, along the edge of the valley, is the large church building; it was the main structure at the site.

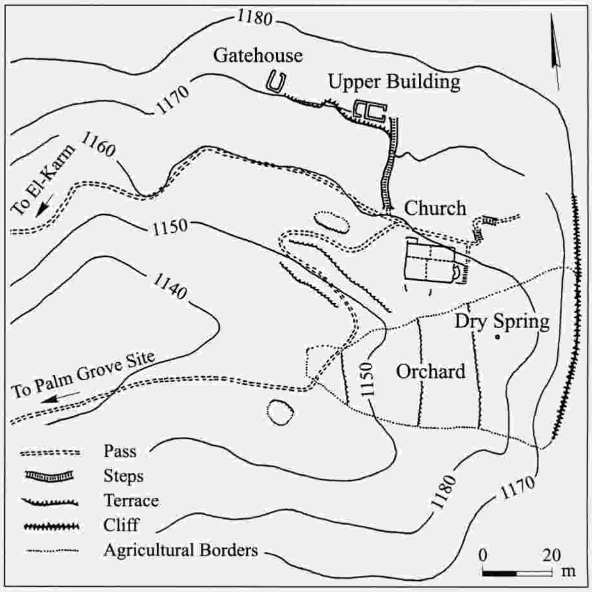
To the north of the church, up the slope, are two small dwellings, one with two rooms and the other with one room. Several agricultural plots are found on the slopes around the valley, as well two hermit-cells.

A built path reaches the site from El-Karm, while another path leads from the site to the Palm Grove Site (see below).

The Orchard

The orchard covered an area of 3,420 sq m, and was triangular, with its apex located down the wadi on the west. The orchard was not fenced. It contained four terraced plots, with an average difference of 2 m between them.

The dry spring is presently covered with a maze of reeds, which indicates a high water table.



Plan 48. Sigilliya, the Church Site – plan of the site.

The Church

This is the main building of the Church Site, apparently serving the Palm Grove Site as well. The structure measured 5.90 × 8 m in its initial phase, and 6.30 × 10.60 m during its second phase (without Rooms 6 and 7). It is built of stone on both faces, and is oriented due east (Plan 49).

The building underwent three alterations from its construction until its final abandonment (Dahari 1993: 341–344).

Phase A. Rooms 2 and 3, constituting the chapel, were built as one long, narrow room (i.e. Room 2). To the north, on the same floor, was Room 5. The entrance to the building was in the exact center of the southern wall. The plastered floor sloped toward the west.

The wall between Rooms 2 and 5 contained a basin with a curved roof (Fig. 72), measuring 0.60 × 0.90 m, which was accessible from both the chapel and Room 5. Its bottom was covered with two layers of plaster. Basins of similar shape, size and location were found at two other excavations in South Sinai – at Deir Abu Mghar and Wadi Fraʿiya (Dahari 1993: 346). This basin might have served for baptism, though it is also possible that it was a heater or used for incense burning. A large quantity of charcoal was found in the basin; analysis showed it to be olive wood (Liphschitz 1993 [Hebrew]), dating to 878–985 CE (Sample RT-1791).

The chapel, 6.80 m long and 2 m wide (Fig. 73), has a ratio of 1:3.4, which is a rare proportion. A chancel screen divided the room into a hall and pulpit; the pulpit was higher than the hall by 0.16 m. The chancel, 0.60 m high, was made of plastered mudbricks, and was preserved at its base and where it abutted to the northern wall. On its north, there was a passageway between the hall and the pulpit. In its center was a raised platform – apparently an ambo.

On the southern side of the pulpit was a plastered stone offering table, measuring 0.60 × 1.50 m. The western part, adjoining the chancel screen, was raised by a step.

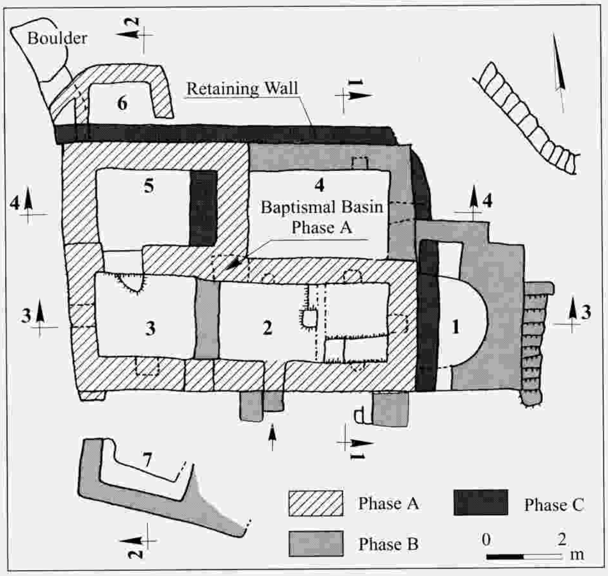
In the center of the eastern wall was a plastered prayer niche (Plans 50, 52; Fig. 73). As in other Sinaitic



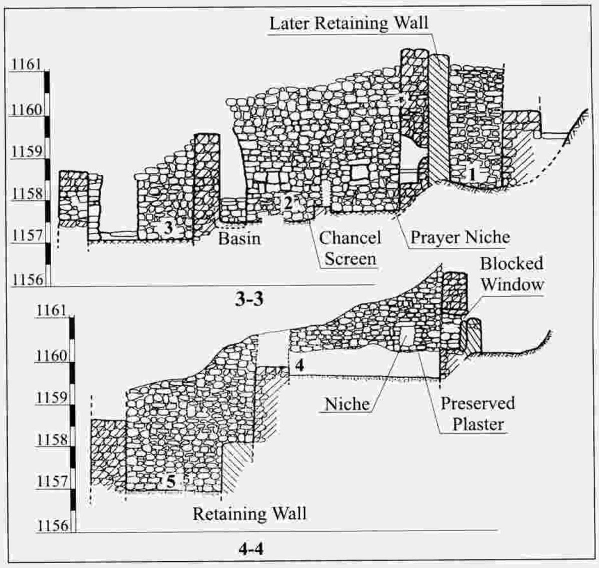
Fig. 72. Sigilliya, the Church Site – the church – a built and plastered basin in Room 2.



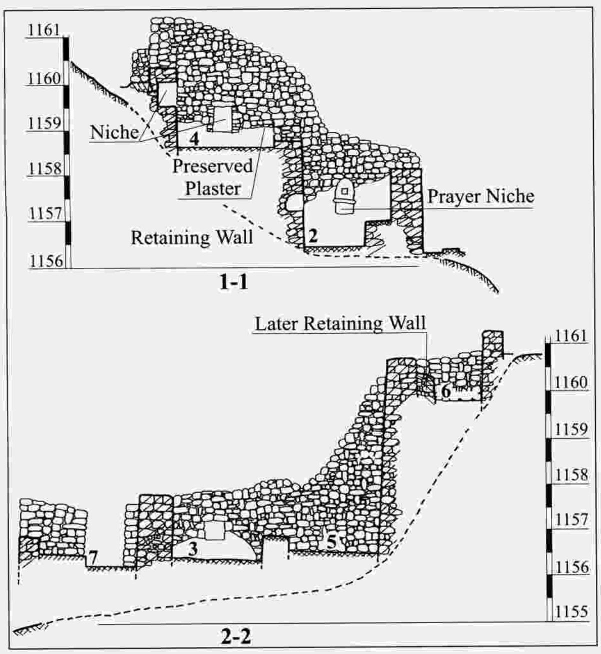
Fig. 73. Sigilliya, the Church Site – the church – chapel in Room 2, looking east.



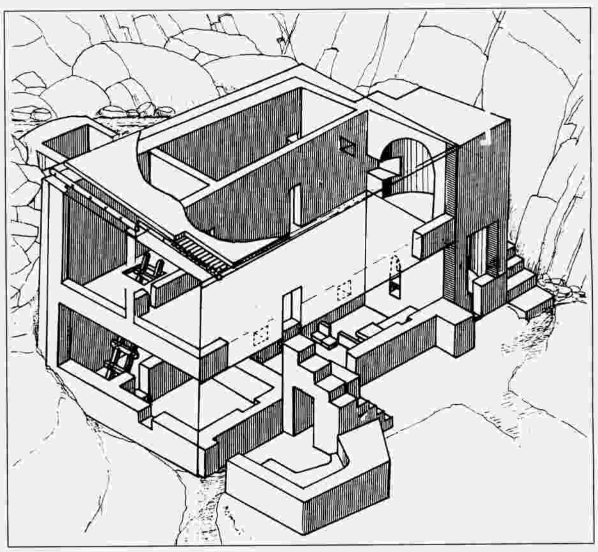
Plan 49. Sigilliya, the Church Site – plan of the ground floor of the church.



Plan 51. Sigilliya, the Church Site – church sections.



Plan 50. Sigilliya, the Church Site – church sections.



Plan 52. Sigilliya, the Church Site – isometric reconstruction of the church.

chapels, this niche was divided into two by a horizontal shelf. The part above the shelf was arched and contained a window in its center, through which the morning sunrays penetrated (Plans 52, 50). Under the shelf, the niche was rectangular, serving as a receptacle for a relict, cultic paraphernalia or holy books (Tsafrir 1985: 274 [Hebrew]). The niche is 0.60 m above the level of the pulpit, and is 0.40 m wide and 0.45 m deep. The lower niche is 0.40 m high and the upper niche is 0.65 m high. The window in the upper niche measures 0.21×0.23 m.

The chapel walls were plastered, including traces of red paint (similar to the church found in the upper city of Pharan). Two niches were found in the northern wall and two niches in the southern wall, one above the built table and the other in the western part of

the southern wall, to the west of the entrance to the church.

A window facing the view down the wadi is found in the western wall. An opening in the northwestern corner of the northern wall joins the chapel with Room 5. The opening is high, and is accessed by a step which protrudes into the chapel.

The roof was built of wooden beams covered by a layer of reeds and beaten earth.

Phase B. The entire building underwent alteration during this phase, including the addition of a second floor, which contained a church with an external apse above the chapel.

The chapel, too, underwent three basic changes during this phase: (1) A wall was built, dividing the chapel into two. The eastern part continued to serve as a chapel, while the western part became a room (Room 3). (2) The main entrance was blocked and in its place a new entrance was opened in the center of the southern wall of the reduced chapel (Fig. 74). (3) The window in the prayer niche was no longer serviceable, as the base of the apse on the upper floor blocked its light.

Phase C. During this phase, the upper floor was destroyed, and the chapel once again became the only cultic area in the building. The basin in Room 2 was blocked (Fig. 75; Plan 49).

In the northwestern corner of Room 2, near the basin, a probe under the plastered floor showed that it was laid directly on bedrock. No finds or traces of an earlier floor were discovered under the plaster floor. The



Fig. 74. Sigilliya, the Church Site, entrance to the church through Room 2, looking south.

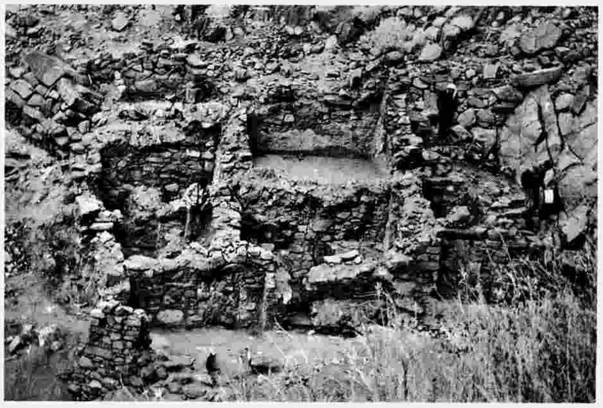


Fig. 75. Sigilliya, the Church Site – the church, general view, looking north.

floor plaster abutted the wall which divided Rooms 2 and 3. Thus, it is clear that the floor of the Phase A chapel was dismantled during the Phase B alterations.

Room 1 (*the Apse*) (Fig. 76). Room 1, in the east of the building, was built during Phase B. The room is rectangular, and contains an additional rectangular protrusion on its northern side (see Plan 49).

A roofed entrance is located in the south of this room. The interior of the room is rounded on the east. The ground floor served as a storeroom, with levelled bedrock as its floor.

The apse was meant to serve the church of the upper floor; only its lower part still stands (Fig. 77). On the northern side of the apse, on the upper floor which contained the church, the lower part of a rectangular niche was preserved. This niche was plastered, and be-



Fig. 76. Sigilliya, the Church Site – the church, general view, looking west.



Fig. 77. Sigilliya, the Church Site – the church – the apse opening, looking north.

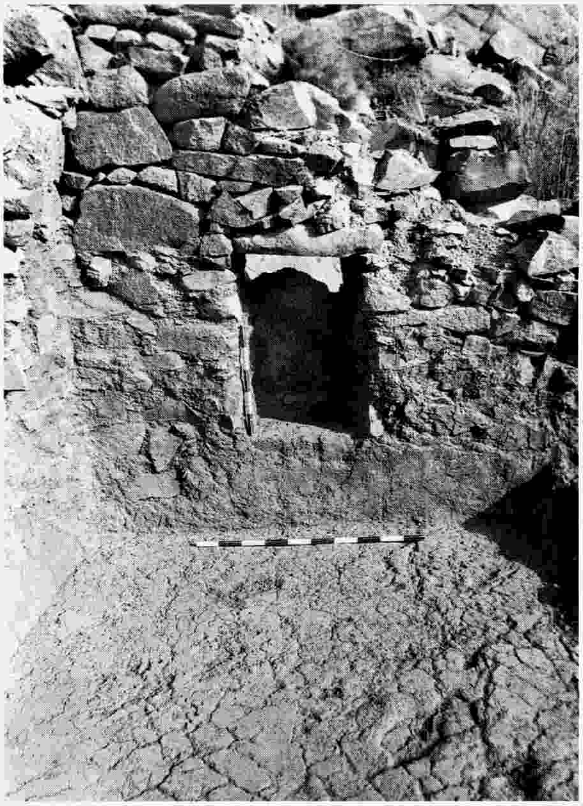


Fig. 78. Sigilliya, the Church Site – the church – Room 4, looking east.

gan *c.* 0.80 m above the floor. Thus, it appears that the church was bi-apsidal, with a central apse spanning the width of the entire church, and an additional, smaller niche built on its north side, which apparently served as a prothesis. This architectural arrangement, with a large central apse and an additional apse protruding from it on the north, was known in South Sinai, in chapels connected with the St. Catherine church (Forsyth 1968: Fig. 2), and in the Wadi Fraʿiya church (Dahari 1993: 347; see Plan 39).

When the upper floor was destroyed in Phase C, a retaining wall was built in the apse (see Plan 49). This wall drastically diminished the entrance to Room 1, or in fact, made it obsolete.

Ten steps, which adjoined the outer eastern wall of Room 1, linked the church with the path, which led to the site from El-Karm and with the two buildings to the north of the site (see Fig. 76).

Room 4. Room 4 is located on the northeastern side of the building, up the slope. This room was built during the second phase, directly on bedrock, on the level of the upper floor (see Plans 49, 50; Fig. 75).

The room is rectangular, measuring 2.15 × 3.30 m; its thickly plastered floor was entirely preserved. The only window in the room was in the center of the eastern wall; it was found blocked on the outside by a thin, flat stone slab. A small niche was located in the northern wall of the room (Fig. 78). The entrance to the room was in the southern wall, through the church hall.

The northern and eastern walls were reinforced during the third phase on the outside by additional retaining walls.

The western wall was built on a fill in the eastern part of Room 5, which was reduced in size during the second phase.

Room 5 (see Plans 49, 51; Fig. 75). Room 5 was located in the northwestern corner of the ground floor of the building. During Phase A, two openings led into it from the chapel, the western to Room 3, and the eastern to the basin (Plan 52).

During Phase B, with the erection of the wall between Rooms 2 and 3 and the blockage of the basin, no entrance remained to Rooms 5 and 3 from the ground floor and access was through the roof, apparently using a wooden ladder (see Plan 51).

During Phase C, an additional wall was built on the eastern side of the room. This wall was meant to support the western wall of Room 4, which was constructed on top of a fill.

Room 6 (see Plans 49, 50). This small room (1.40 × 1.60 m) was located north of the northwestern corner of the main building. This room was apparently built during the

initial phase; on the west it was set on top of two large boulders, and on the south it leaned on the church's wall. The room was entered from the east, through an opening 0.60 m wide, adjoining the outer wall of Room 5.

During Phase C, when the external retaining wall on the north of the building was built, the entrance to this room was almost blocked, and its internal area was decreased; apparently, the room went out of use during this phase.

In our opinion, this room served as the dwelling of a monk. Such a phenomenon of small hermit-cells adjoining chapels is found throughout Sinai (see Deir Abu Mghar). However, an alternative use for this room is also possible.

Room 7 (see Plans 49, 50; Fig. 79). Room 7 was found to the south of Room 3. It was almost completely destroyed, due to its proximity to the wadi.

The room, not parallel to the main building, was oriented east-southeast–west-northwest. The entrance to the room was from the west, and there apparently was an additional entrance from the east.

Plastered benches were built along the eastern, southern and western walls, 0.40 m above the plastered floor.

The eastern wall of the room was exceptionally thick, reaching 1.60 m. Only the southern corner of this wall was preserved.

Near the entrance to the chapel, and to its west, is an engaged pillar in the external wall. It seems that the entrance to the room was located to the south of this pillar.

Room 7 was built during the second phase, and apparently was the entrance hall to the chapel and to the church on the upper floor. An alternative possibility is that this room was the monks' dining room, used communally on Sundays.



Fig. 79. Sigilliya, the Church Site – the church – Room 7, looking west.

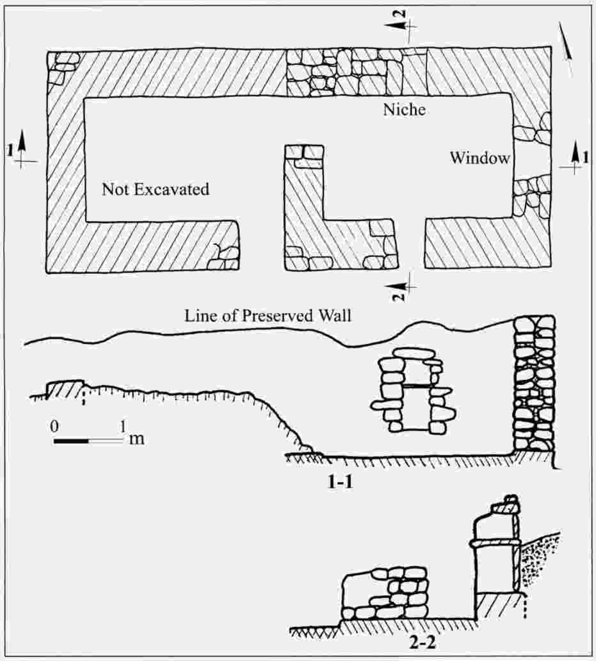
The Paved Surface. To the south of the building, near its southeastern corner, is a square pillar, measuring 0.75 × 0.90 m, adjoined by two stone steps. Between the pillar and the eastern entrance to Room 7 is a surface paved with stone slabs. This most likely served as the entrance courtyard to the building, with the steps around the pillar leading to the second floor. Such a layout is also found in other Sinai monastic settlements (see ʿEin Najila and Deir Abu Mghar).

Summary and Conclusions. The church building represents the various stages of monastic occupation at Sigilliya. During the initial phase, apparently at the beginning of the fifth century CE, a simple, one-storied building was erected, which contained a chapel and an additional room. During the second phase, the building expanded to include eight to nine rooms on two floors, with a chapel on the lower floor, and the upper floor housing a church with an external apse and prothesis niche on the north of the apse. During the final phase, the building was in decline, with the upper floor destroyed, and renovations taking place only on the lower floor.

The decline and destruction of the building were gradual. First the upper floor was demolished, though simultaneously renovations were carried out on the lower floor, and its walls were reinforced. During this phase, the basin was blocked, and a retaining wall was built inside the apse. Material found in the basin, prior to its blockage, was Carbon-14 dated to the end of the ninth or the tenth century CE. This indicates that the final alterations in the building were conducted as late as the tenth century CE. Thus, it may be concluded that this solitary site continued to serve the monks for many years after the Arab conquest.

The Upper Structures (Plan 53)

To the north of the church building, some 50 m up the slope, are two small buildings, built on a horizontal terrace with a general east–west orientation. The terrace and the buildings were accessed by a flight of stone steps, which began near the northwestern corner of the church structure, at the juncture of four paths: one to El-Karm, the other to the Palm Grove Site; the third branched into two, with one descending to the church and the other ascending the steps to the northeast, to a hermit's cell; the fourth path was stepped and led up to the buildings under discussion. The steps terminate on the eastern side of the terrace (see Plan 48).



Plan 53. Sigilliya – the Church Site – upper building.

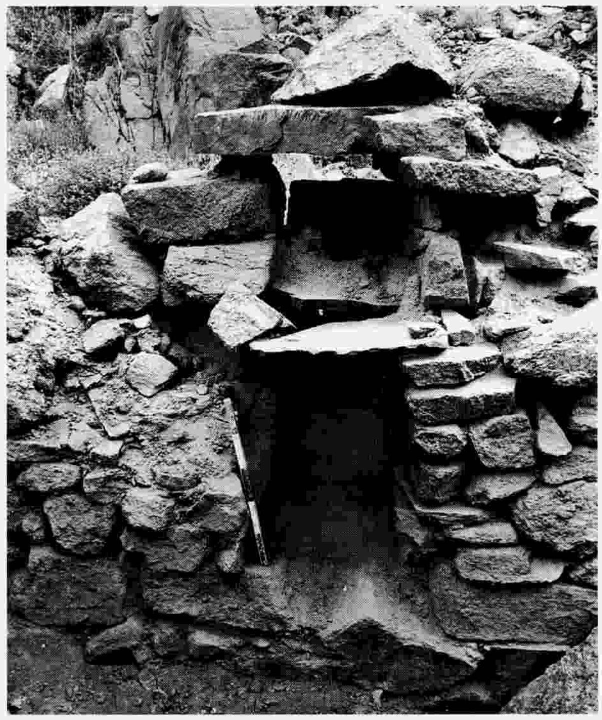


Fig. 81. Sigilliya, the Church Site – niches in the upper building, looking north.

The Upper Building (Fig. 80). This building had two rooms, built of fieldstones on both faces. Its long axis is oriented east–west, and the structure measures 3.20 × 7.30 m. Each room has its own entrance on the south, as well as an opening joining them. The original lintels are composed of long stone slabs. In the center of the northern wall of the eastern room are two superimposed niches, separated by a stone slab (Plan 53; Fig. 81).

The rooms were not paved, and their floor was made of beaten earth. The roof was composed of wooden beams, reeds and packed earth.

This structure apparently was a dwelling. The eastern room most likely served the monastery's abbot, while his disciple occupied the adjacent room.

The Gatehouse (Fig. 82). About 14 m west of the upper building is a small stone structure, with an entrance facing north. The interior (1.10 × 1.75 m) is sufficient for the dwelling of a single monk; this seems to have been the function of this room. The room was well preserved, especially the entrance lintel which was still sitting on the doorposts.



Fig. 80. Sigilliya, the Church Site – upper building, looking south.



Fig. 82. Sigilliya, the Church Site – the gatehouse, looking south.

Summary and Conclusions

A. The Church Site is a good example of a Sinaitic hermit monastery, with its location in the granite mountains, in a small valley with its own spring, containing agricultural plots, hermit-cells and rooms, and of course, a church with its auxiliary rooms. This is a typical paradigm for most of the hermit monastic settlements in the Sinai.

B. The architectural remains indicate that the number of monks in this valley was limited, not exceeding eight to ten, based on one monk and his disciple inhabiting the upper building, another monk in the gatehouse, two monks in cells near the valley (Fig. 83), two monks in the church building, a monk in Room 6, and possibly two monks abiding in cells not preserved or yet to be discovered.



Fig. 83. Sigilliya, the Church Site – hermit-cell in the agricultural plots.

C. There is no proof that the monastery existed in the fourth century CE.

D. The site, as did the entire monastic movement in Sinai, reached its peak in the sixth century CE, with its subsequent demise and abandonment taking place gradually.

E. The site is closely tied to El-Karm and apparently with the site of the Palm Grove as well (see below); in the author's opinion, these constituted a single monastery.

Site 66: The Palm Grove Site
5637516515 UTM 1,035 m asl

This site is situated in a long, narrow valley, which was created at the confluence of two tributaries: one descending from the Church Site, and the other from the south.

The site is reached by a partly paved path, about 400 m long, which descends from the Church Site, down the southwest bank of the valley.

There are several agricultural plots at the site, the highest (covering *c.* 1,200 sq m) located in the southern tributary at 5637016465 UTM. About 100 m down the valley, on the way to the site, is a built hermit-cell. Between the cell and the site itself is a spring whose water is collected into a small pool. A narrow conduit, built directly on the rock, extends from the pool to the orchard located in the Palm Grove Site.

Between the spring and the site, on the western bank of the wadi, is a hermit-cell under a large boulder.

An orchard located at the site itself covers about 1,500 sq m. This orchard is watered from the above-mentioned conduit, as well as from an additional spring found in the orchard.

Adjoining the orchard on its east is a square structure measuring 8 × 9.50 m, built of fieldstones which are larger than any found at the Church Site or in any other structure at Sigilliya. Its mode of construction recalls the church building at Deir Antush. The building is almost entirely ruined, and its inner plan cannot be reconstructed.

A steep path with many steps descends directly from the Palm Grove Site to Wadi Sigilliya, near Deir Sigilliya. Thus, the site was accessible from the Church Site, as well as from Deir Sigilliya.

Pending excavation, it is impossible to confirm whether the central building at the Palm Grove Site was a chapel, serving as the center for the hermit monks.

Thus, we are unable to determine if the site was part of the hermit monastery centered at the Church Site, or if it constituted an independent monastery.

It appears that about four monks inhabited the site, cultivating the agricultural plots, which covered a total of 2,700 sq m – *c.* 675 sq m per monk.

Small Finds from the Sigilliya Sites

Plaster Seal

A cylindrical seal made of plaster was found in Room 5 (Fig. 84). Measurements: 4.7 cm long, 3.8 cm in diameter. Its two faces were incised with identical stylized crosses. This was apparently used to stamp the holy bread with the sign of the cross.

Iron Nails

Rooms 1, 2, 4 and 5 in the church building yielded dozens of fragmentary iron nails, with square sections, ranging in length from 5 to 11 cm.

Summary and Conclusions

A. The Byzantine complex at Sigilliya was of a monastic nature, belonging to the type of hermit monastic settlements common in Sinai.
B. The complex was connected to Feiran and Mt. Sinai by way of a wide, paved path. There was no path along Wadi Sigilliya, and it appears that this complex was not related to Raitho.
C. The Sigilliya monastic settlements were concentrated around two centers, one at Deir Sigilliya and the other at the Church Site. It is most likely that the two centers were religiously, socially and economically related.



Fig. 84. Sigilliya, the Church Site – a stylized, cross-shaped plaster stamp.

D. The combination of abundant perennial springs, fertile soil, a region inaccessible to the Saracen elements and inspiring scenery contributed to the uniqueness of the Sigilliya complexes.
E. The monks' major occupation was agriculture, which included cultivation of fruit trees, olives, dates and grapevines for consumption and wine production.
F. An estimated 25 to 35 monks inhabited the complex.
G. There is no data indicating that the monks settled at Sigilliya prior to the beginning of the fifth century CE. The pottery indicates that the first settlement occurred in the fifth century, and reached its pinnacle in the sixth and seventh centuries. A Carbon-14 analysis shows that the site continued to be occupied until the beginning of the tenth century CE.
H. Two possibilities were raised as to the name of the Wadi Sigilliya monastic settlements: Maloucha, a name mentioned in the tales of Anastasius the monk; and Sengis, a name appearing on a wine jar found in the winepress at El-Karm.
I. About ten dunams of irrigated agricultural land were surveyed in the Sigilliya complexes (2,600 sq m in Wadi Sigilliya, 1,350 sq m in El-Karm, 3,400 sq m in the Church Site, and 2,700 sq m in the Palm Grove Site). Assuming that about 30 monks lived at Sigilliya, each monk reaped the crops from an average plot of about 335 sq m. To this may be added additional extensive irrigated plots along the slopes, where hanging vines for the wine industry were most likely grown.

Monastic Settlements of the Feiran Oasis

Site 67: The Jebel Ṭaḥuna Monastic Settlements

5618517615 UTM 816 m asl

Jebel Ṭaḥuna ('the Mountain of the Windmill') is located north of Tell Maḥrad, about 190 m above the level of Wadi Feiran. This mountain is not a separate entity, but rather its summit is midway on a slope which reaches an elevation of over 1,000 m asl. The mountain is composed of metamorphic rocks.

A built, partly-paved path ascends from Wadi Feiran to the summit of Jebel Ṭaḥuna, along which are three chapels, a monks' dwelling (near the second chapel), a monastery near the summit, and a chapel at the summit. Dozens of built graves are found scattered on the lower slopes of the mountain. The remains described here date

to the Byzantine period, though it is possible that some of the graves are earlier.

The Lower Chapel

Wilson and Palmer (1869: 211) present the following description of this chapel, as well as of the third chapel:

> Some of the smaller chapels stand at the mouths of rock-hewn cells or tombs; they are built partly of loose stone, partly of sun-dried brick; the walls bear traces of plaster, and the floors are laid with tiles made in the country, and ornamented with a species of reed or shrub; in the east wall of each there is an apse, and there are generally one or two recesses in the other walls for holding water jars ...

In Wilson's drawing of the chapel, a completely preserved squinch is visible in the southeastern corner (Fig. 85).

Lagrange (1896: 632) furnishes a detailed account of the chapel:

> About 150 m up the ancient path, above the wadi, one reaches the first chapel, located on a level terrace … time has wrought havoc with the chapel, which is almost completely ruined. Numerous fragments of stucco may be found on the floor …

Lagrange neglects to provide a plan of this chapel. The lower chapel measures 4.45 × 5.50 m. The stone foundation is low and the walls are mostly built of mudbrick. The entrance is in the southern wall, with a lintel composed of a flat mudbrick arch. The external apse is located due east. To the right (south) of the apse is a window, which most likely had a symmetrical counterpart on the north, though the wall there has not been preserved to that height. Under the northern wall is a rock-carved grave, which was partially covered with stone slabs. An additional grave might have adjoined it on the east. It appears that the grave existed prior to the chapel, which was built on top of it. This had apparently been the burial of a local saint (Tsafrir 1993: 315–333). Grossmann remarks that all the chapels along the Via Sacra were mausoleums, with graves in each of the three (Grossmann 1984–1985: 78, 79).

The southeastern corner of the chapel had been preserved to its ceiling and is covered with white plaster. The corner squinch indicates that the building had been roofed like the third chapel, namely by corner squinches supporting a mudbrick dome (Fig. 85).

The Basilica

The basilica is located about 200 m up the path from the lower chapel, at a vertical height of about 50 m above it. Wilson and Palmer (1869: 212) described the basilica:



Fig. 85. Jebel Ṭaḥuna, the lower chapel, looking southeast.

> About half way up the hill there is a larger church, standing on a platform of loose stones; its walls are plastered within and without, and on the outside are many scratches and crosses made by pilgrims; in the interior are shafts of columns, rude capitals, and the remains of pilasters of red sandstone; close to the apse outside the wall is a stone with a Sinaitic inscription …

Lagrange provides a sketch of the basilica's plan, which does not include the column bases, column drums and capitals; thus, he neglects to reconstruct the edifice as a basilica.

Grossmann (1996: 14–16) excavated this church. He found two phases, the first with four columns on each side of the nave and without an additional room on the southern side. The later phase consists of six columns on each side, with an additional longitudinal room on the southern and western sides of the church.

The entire structure was built of metamorphic fieldstones, and was plastered on both faces with a plaster composed mostly of mudbrick, some lime and much straw inclusions. The right (southern) wall of the build-

ing was built on a raised podium. The lower courses of the semicircular apse, also built of fieldstones, were preserved.

The entrance was in the center of the western wall, into the narthex, from which an additional entrance led into the nave. The stylobate, columns and capitals were made of sandstone. The capitals were undecorated.

About 15 m north of the basilica was a building with three rooms, constructed in the same technique, apparently having served as the monks' dwelling.

The Chapel below the Summit

This chapel is situated some 100 m above the basilica, near the summit. This a small, square chapel, measuring 4 × 4 m. The external apse in the eastern wall was completely preserved. To its right (south) was a window, while to the north was a rectangular niche divided by a stone slab. Above this niche there apparently had been another window. The main entrance to the building was in the northern wall, providing direct access to the path leading to the summit. The western wall is partially destroyed; it is not clear whether it contained an additional entrance or window. The chapel is constructed mostly of fieldstones, though the upper part of the apse and the arches above the entrances are built of mudbrick. A squinch composed of a large, flat metamorphic stone slab rests on the edge of the northern wall, while its other side rests on the edge of the western wall. This indicates that the structure had been roofed with a mudbrick dome.

The chapel had been covered with white plaster inside and outside. The external plaster was especially well preserved on the eastern wall, where it was twice as thick as the plaster in the other parts of the chapel. This plaster contained some Byzantine sherds.

The eastern wall of the chapel was very close to the cliff. About 4 m to the northwest of the chapel was a well-plastered cistern, 1 m in diameter and 1.20 m deep.

Lagrange (1896: 635), Grossmann (1985: 78) and Tsafrir (1993: 315–333) provide detailed plans of this chapel. The plan presented by Wilson (1869: Pl. XIV) is imprecise.

The Church at the Summit

This is the major church on the mountain. It is a basilica, measuring 6.50 × 8 m, and contains a nave, two aisles, one external apse in the eastern wall (azimuth 94°), a narthex on the west and two additional long rooms on the east and west.

The entrance to the narthex was in the center of the western wall, with an additional entrance on the same axis leading to the center of the nave. The roof was supported by sandstone columns composed of round drums, as well as by square pillars. The church was constructed of a combination of local metamorphic fieldstones and ashlar sandstones in the corners. The only element built of mudbrick in the entire building was a prayer niche. The building was plastered inside and outside, with the external face covered by a double layer of plaster.

In order to build this church, it was necessary to enlarge the surface of the summit. Thus, a podium was erected on the eastern and southern sides. The podium's southern side was well preserved, but its eastern side suffered from the same damage that harmed the prayer niche.

In the western part of the southern aisle was a large, plastered cistern, found under the floor level.

No traces of the church's offering table, altar, pulpit, ambo or floor were found, as these were probably destroyed when the inhabitants of Feiran converted to Islam, and the church became a mosque. This apparently was the phase when the apse was destroyed, and two *miḥrab*s facing south were added to the southern aisle. At this stage a room was added near the northeastern corner, and an additional entrance was opened in the north of the building.

Several red sandstones used in the church bore inscriptions, mostly in Greek, a few in Latin. While most of the inscriptions are indecipherable, some bear names of pilgrims who visited the church. Lagrange relates that the square pillar between the two *miḥrab*s of the mosque bore an inscription – +AZARIA MONAXOC (Lagrange 1896: 637).

The British survey team provided a very comprehensive description of this church (Wilson 1869: 212; see also Lagrange 1896: 636, 637). Though their plans are exact, they are incomplete. Tsafrir's plan is more precise (Tsafrir 1993: 315–333); Grossmann (1984–1985: 80) has three square column bases on each stylobate, instead of the six known today.

The Monastery North of the Summit

About 50 m to the north of the summit church, on a saddle between the summit and the continuation of the ridge to the north, is a structure with several small rooms. Only Byzantine pottery sherds were recovered during the survey of this building, which apparently served as a monastery. A less likely suggestion is that this had been a pilgrims' hostel.

The Via Sacra

The path to the summit of Jebel Ṭaḥuna extended from the northern gate of Pharan, traversing Wadi Feiran and ascending by way of the three chapels to the summit. The path was *c.* 600 m long, with an average width of one meter, containing many steps and paved in many places. Retaining walls built above the slope supported the steepest parts. A sharply meandering path climbed from the basilica to the third chapel.

Summary and Conclusions

The association of Jebel Ṭaḥuna with a sacred tradition is indicated by the many churches, the Via Sacra progressively ascending to the summit and the inspiring view of the Feiran Oasis and Jebel Serbal, seen from the summit church.

Numerous historical sources confirm the sanctity of the site, referring to the root of this tradition. Eusebius writes of Rephidim: "... There too Joshua fought with Amalek. Near Pharan" (*Onomasticon* 766).

Peter the Deacon, apparently quoting Egeria, refers to Rephidim:

> The very lofty steep mountain which overhangs Pharan is the place where Moses prayed while Joshua defeated Amalek; a church has now been built at the spot where Moses prayed, and you can still see the place where he sat, and how he had the stones under his couch. When Amalek was defeated, Moses built an altar there to the lord. And for half a mile there it is all so steep that you would think you were going up a wall (Wilkinson 1971: 209).

Cosmas Indicopleustes relates:

> ... Next (day) they camped in Rephidim, the place now called Pharan (Wilkinson 1977: 73).

The Piacenza Pilgrim wrote:

> ... And went to the city of Pharan, where Moses did battle with Amalek. In that place is a chapel with its altar built over the stones with which they supported Moses while he prayed (Wilkinson 1977: 88).

These sources leave no doubt as to the Christian tradition identifying Jebel Ṭaḥuna with Rephidim, the site where Moses prayed during the battle with Amalek. This was the event which bestowed the mountain its sanctity.

The relationship between the Pharanites who inhabited the city of Pharan and Moses was significant, with the motif of Moses' prayer a dominant one in the town, appearing on many architectural elements. Moses raising his hands in prayer is a motif incised on several capitals and lintels in and near Pharan (Dahari 1988: 39–41 [Hebrew]).

The conversion of the church into a mosque following the Arab conquest also confirms this association. Moses was the first prophet, and was thus revered in Islam. Even after the inhabitants of Pharan converted to Islam, the tradition of Moses and the mountain was maintained, merely altering the mode of worship.

When the town was destroyed, the sacred tradition was reverted by the Arabs to the site which had been holy during the Nabatean period – Jebel Muneijah.

Site 68: The Acropolis Monastery at Tell Maḥrad
56211756 UTM 630 m asl

Tell Maḥrad (see Plan 40: the acropolis of Pharan), is composed of an upper and lower city, covering a total of 80 dunams, and containing a large church and numerous dwellings. This is the only Episcopalian town in South Sinai. Its function as the military, administrative, religious and economic center for South Sinai made it an important nerve center for the monastic movement and the pilgrimages to Mt. Sinai (Dahari 1988: 29–56 [Hebrew]; Introduction, pp. 15–20).

The upper city contained a church complex and an additional area which, in the author's opinion, formed the town's citadel. Following is a discussion of the church complex only, which apparently served as an urban monastery.

The Church Complex

The rectangular church, covering *c.* 525 sq m, is located on the northeastern side of the acropolis. It was constructed on the edge of a *ḥawwar* step, with its northern wing built on a fill, laid between the wall and the hill. The apse faced an azimuth of 80°.

The church, like the city wall, was built with a foundation of local fieldstones (mostly granite, and metamorphic and igneous rocks), topped by a mudbrick superstructure.

The church was surrounded by a wall. Its eastern and northern walls served as the outer walls of the tell, while the other two walls were internal. A single gate led to the complex, located on the western side of the southern wall. The gate leads directly to the narthex, which was a long, narrow room, from which three entrances opened to the nave and two aisles of the church. An additional entrance led to a room on the north, which was long and narrow, oriented east–west; it was built on a fill and adjoined the city wall.

The church was a basilica with a single external apse. (Wilson erroneously assumed to have found the traces of two additional apses flanking the central apse.)

The roof was supported by twelve columns, six in each row. The columns were composed of sandstone drums with an average diameter of *c.* 0.48 m, based on a sandstone stylobate. The pulpit was ascended by two (or three) steps leading from the nave and aisles. No remains of a chancel screen or ambo were found *in situ*. Flanking the pulpit on its north and south were plastered benches, about 0.40 m high. The apse did not contain a synthronon.

The church floor was composed of square sandstone slabs, which were preserved mostly in the southern aisle. Clay roof tiles, which were discovered on the church's floor, had been placed on the wooden pediment.

To the south of the southern aisle were two rooms, which were accessed from the aisle. The easternmost of the two was a long, narrow chapel, with a pulpit ascended by two steps. The arched prayer niche is raised above the floor. Flanking both sides of the arch were sandstone columns, bearing a triangular design. Near the southern and western walls of the chapel were plastered benches. Several fragments of painted plaster were preserved in the southwestern corner. (Wilson mentions well-preserved red plaster; cf. Wilson and Palmer 1869: 210.)

Two additional rooms were located to the north of the northern aisle, with another room to the north of the apse, which was entered from the pulpit. The westernmost of the three rooms is the largest; it is a long, narrow room, whose northern wall has been reconstructed, and southern wall almost entirely destroyed.

The room to the north of the apse had a lone column in its center, which supported the roof. A bench similar to those in the chapel and church pulpit was built on the southern side. In the northwestern corner, an entrance leads to an additional room found to the north of the pulpit.

Excavation of the church by Grossmann (1984–1985: 75–77; 1996: 11–36; Grossmann et al. 1992: 7–20) revealed that it was cross-shaped. Two phases of the church were distinguished. It had a chapel to the south of the southern aisle and a room to the north of the northern aisle; both rooms were separated from the aisles by three columns rather than walls. The construction of the church is assigned to the mid-sixth century.

The Church's Function

The location of the church at the edge of the upper city, separated from the citadel and the lower city, as well as the many rooms surrounding the main hall, support its function as a monastery. Similar monastery churches have been found in the Negev. The British Survey team (Wilson 1869: 210) maintained that the entire acropolis served as a monastery. This assessment is difficult to accept as (a) though the church and citadel both occupy the acropolis, the church complex was completely separate from the citadel; (b) it is more likely that a military garrison stationed in the city (as related by the Piacenza Pilgrim) occupied the citadel.

The obvious question is where did the monks live? It may be assumed that they inhabited the complex itself, as well as dwelling in hewn cells situated along the edges of Wadi Feiran, and in the lower city.

The phenomenon of a monastery in an urban setting was especially common throughout the Christian world. Nilus' first encounter at Pharan was with monks (*PG* 79: 583).

The northern church at Neṣṣana was also built at the edge of the acropolis, and also contained many rooms (Colt 1962). A similar situation is found in the southern church at Avdat (Oboda; *NEAEHL* 3: 1155–1165). Though there is no upper city in Shivta (Sobata), the monastery church was built as a citadel at the edge of the city (*NEAEHL* 4: 1274–1277). The northern church at Reḥovot-in-the-Negev was also located at the edge of the town, and contained many rooms; it, too, might have served as a monastery (*NEAEHL* 4: 1274–1277).

Urban monasteries were found in other northern cities as well. The Monastery of the Lady Mary, near the northern wall of Bet She'an, is an example of such a complex (Fitzgerald 1939).

The urban monasteries, by nature, were *coenobia*, with a common dining room being the hub of the complex. The two long, narrow rooms on the northern side of the upper church, adjoining the city wall, would be suitable for such a purpose.

The large, superb church found in the lower city also supports this supposition, as it is not likely that the bishop would make permanent use of the church monastery.

Grossmann, the excavator of the Pharan churches, is of the opinion that the upper church was a cathedral (Grossmann 1984–1985: 75; 1996: 11–36).

Site 69: Deir Banat
56321752 UTM 675 m asl

The ruins of Deir Banat are located on a chalky hill, some 30 m above the oasis.

The hill is found on the right side of the flow path, affording a fine view of a palm grove up the valley and on its slopes, as well as of Jebel Muneijah.

The hill covers about one dunam, and is surrounded by a wall built of mudbricks on a stone socle, as at Tell Maḥrad. The area enclosed in the wall is full of the collapsed debris of buildings. Pending excavation, no plan could be deduced of these remains. Most of the pottery recovered from the site was Byzantine, including ribbed storage jars. Many sherds of North African Late Roman ware and its Egyptian imitation were found, as well as several glazed sherds dating to medieval times, and modern Gaza ware. The survey yielded four coins, two dating to the fourth century CE (Constantine and Honorius), one to the reign of Justin I, and one unidentified.

The name Deir Banat ('the Monastery of the Women') was used in the twentieth century by the Bedouin. As Tell Maḥrad was considered a monastery, they decided that this smaller tell should have been a female monastery. Wilson remarks that this site had no name, but was called in the past 'Kabegin' (Wilson 1869: 213), of obscure meaning.

The fortified structure was apparently erected in the fourth century CE. Its function is not clear, though the author favors the view that this was a citadel, which was part of the defense system protecting the oasis. The situation of Deir Banat was perfect for such a purpose, as it was found in the center of the oasis, in a very protected spot with a panoramic view. An auxiliary garrison related to Pharan was stationed here.

The other possibilities are that it was either a monastery, a farmhouse or an inn.

Summary and Conclusions

A. Many monks lived and worked in and near the Episcopalian town of Pharan, where most of the inhabitants were Pharanites and Saracens. It appears that similarly to the town's inhabitants, the monks were Pharanites and Saracens as well.

B. The two monastic centers related to the city, Jebel Ṭaḥuna on the north and Sigilliya on the south, were diametrically different from each other. Jebel Ṭaḥuna was related to the tradition of the battle of Rephidim, and served as a pilgrimage center, with its monks providing transport and prayer services for the pilgrims. The monks of Sigilliya lived lives of solitary seclusion, far from the city of Pharan or any other monastic centers in the Sinai.

In our estimate, about 100 monks lived in the monastic center of Pharan in the sixth century CE: 35 in Wadi Sigilliya, about 40 in Jebel Ṭaḥuna, and 30 in the city and its oases.

Chapter 4

The Hermit Monastic Settlements at Raitho

The identification of Raitho with biblical Elim (Ex 15: 27) was proposed by Ammonius, who located Raitho at the site where Moses and the children of Israel camped when they left Egypt:

> ... There are those twelve springs of water and the palm-trees which are written [about] in the Exodus, seventy palm-trees and twelve springs, which have increased very greatly in numbers (Lewis 1912: 9–10).

Cosmas Indicopleustes (Book V, 195) writes:

> [Ειτα παλιν οδευσαντεσ απο της Μερρας, ηλθον εις Ελεειμ, ην νυν καλουμεν Ραιθου] They (the Children of Israel) came from Marah to Elim, which we call Raitho (*PG* 88: 197).

Epiphanius the Monk (Donner 1971: 74 [VII 4–7]) identifies the site with Marah, where Moses struck the rock and extracted water:

> Εξελθθν δε ευειθεν, κατηντησεν εις Ραιθου. ενθα ανηρεθησαν οι επτακοσιοι π(ατε)ρες υπο τ(θν) βαρβαρ(θν). Εν εκεινθ δε τθ τοπο, εστι και η ακροτομος πετρα. Gv επαταzεν ο Μθυσης, και ερρυησαν υδατα.

These identifications contradict that of Egeria, as quoted by Peter the Deacon: *Arandara autem est locus, qui appelatus est Helim* (*CCSL* 175: 102; y12), as well as that of the Piacenza Pilgrim: ... *etiam et ad locum* (*Surandala*) *ad LXXII palmas et XII fontes* (*CCSL* 175: 150; 41 = v187). Both the latter identify Elim at the oasis in Wadi Gharandal. In our opinion, this identification is not feasible. While it is possible that the identification of biblical sites changed, or that inhabitants of two different places both asserted the authenticity of their site, it seems improbable that in the mid-sixth century CE there was no permanent, decisive identification for Raitho.

Archaeological remains related to Raitho and its environs were found in three main locations: Bir Abu Suweira; the Bedouin village El-Wadi; and Sheikh Raᶜiya, about 8 km south of Eṭ-Ṭur. In the modern town of Eṭ-Ṭur, 561123 UTM, until 1980 no remains earlier than the Middle Ages were found. Wadi Meᶜar, on one of the roads from Mt. Sinai to Eṭ-Ṭur, contained additional archaeological remains, which will be discussed below.

The settlement at Raitho continued to exist following the Arab conquest. Historical sources indicate that the site flourished during this period, as well as in the Middle Ages. In the eighth century, Raitho was mentioned by Epiphanius the Monk. A papyrus dating to the first decade of the eighth century CE (*Pap. Aphrod.* 1433) mentions Raitho as a site to the south of Clysma, with a registered income (Bell 1910: 282–283). In the eleventh century CE, Anastasius and the monk Nicon of the Raitho monastery are mentioned (Skrobucha 1966: 43).

The Historical Sources

Ammonius (Lewis 1912: 1–14 = Syr. 1–53; Combefis 1660: 86–132): Ammonius, in his geographical report on the region of Eṭ-Ṭur, indicates that he had visited the site and was able to provide a precise description of Jebel Abu Suweira, El-Qaᶜ and the port at Raitho, as well as the Saracen dwellings near the monks in the area of the springs past the mountain, apparently in El-Wadi. This most detailed source supplies much data concerning Raitho and its monks:

The 43 monks inhabiting Raitho at the end of the fourth century CE identified the site with biblical Elim. The monks lived a life of exceeding austerity, and many had no property other than their robes. It was common to find a monk residing with his disciple. They lived a great distance apart – Father Joseph of Elat, for example,

built a cell with his own hands about two miles from the sea. It is emphasized that his pupil did not live with him, but near him (which is understood to be an uncommon practice). A monk who left his cell or died, willed it to his disciple.

At Raitho, there was a mudbrick church built in an enclosure which was termed a citadel: το λεγομενον καστρον (Combefis 1660: 110). The walls were three times the height of a person. This church served as the religious and administrative center for the Raitho monks, as well as their shelter in times of danger. The local Saracens used to trade wheat from Egypt for dates from the monks.

It was customary to bury the monks in or near the church. A disciple would bury his teacher. The martyrs murdered by the Blemmyes were brought in procession to the church, while waving palm fronds, while the Pharanites dressed the monks' bodies in expensive garments before burial. It is possible that there had been a custom of wrapping the martyrs in valuable apparel.

John Bishop of Nikiu (Charles 1916: 125 = 89: 33, 34): The area of Eṭ-Ṭur was called Arâitê, probably a distortion of the name Raitho. (Note that the original Greek version was not preserved; the English translation of the Ethiopian version was used here.)

A barbarian (not local Bedouin) invasion of the monks' dwellings at Raitho took place during the reign of the emperor Anastasius (491–518 CE). The monks were slain or taken into captivity, and their possessions were plundered. As a result, Anastasius built a citadel for their protection.

Apophthegmata Patrum: The *Apophthegmata* provides the following details on the Raitho monks:

There was no special room for dining, and meals were taken in the church. There was a special table for the elders, and a separate table for the novices (*Alphabetical Collection: PG* 65: 377, *Peter* 3).

Among their other activities, the monks of Raitho produced baskets (*Alphabetical Collection: PG* 65: 305–308, *Nistheros* 6). The monks do not live together, but dwelt in several places near Raitho; it was common to find them inhabiting caves and cells. At a place near Raitho called 'Israel', an elderly penitent dwelt in a cave (*Anonymous Collection* b 198b = n529).

The monastic entity at Raitho was organized in communities of secluded monks, who were mainly related to the Egyptian monasticism at Scetis and the mountain of Antonius at an early stage of the fourth century CE.

John Moschus: John Moschus refers to Raitho in several anecdotes, from which the following may be learned:

A. The monks of Sinai, Egypt and the Judean Desert frequently moved between the monasteries of these deserts (*Limonarion*: 16, 116).

B. The eschatological requirements at Raitho were extremely demanding. The monastery's abbot would preach to the monks and emphasize the need for austerity and silence. Many monks at Raitho lived in seclusion for decades (*Limonarion*: 115).

C. The monks at Raitho believed in the medicinal powers of Simeon the Stylite and went to his monastery to be cured (*Limonarion*: 117, 118).

D. There was a laura at Raitho, where the monks lived in cells which had doors (*Limonarion*: 119).

E. The monks used to wear clothing made of palm fibers (*Limonarion:* 120).

F. The older monks had disciples (Gregorius the Byzantine and his disciple Gregorius of Pharan) (*Limonarion:* 121).

G. The monks also lived on islands in the Red Sea near Raitho (*Limonarion:* 121).

H. There was a custom of burying monks (apparently only those who died an unnatural death) together with the 40 martyrs mentioned by Ammonius (*Limonarion*: 120).

Theodore of Pharan: The last bishop of Pharan apparently was a monothelite (Elert 1951: 67–76), who was identified with the presbyter Theodore of Raitho who, between the years 580 and 600 CE wrote the *Praeparatio de incarnatione*, of which only few segments have been preserved (Solzbacher 1989: 287). It appears that the monothelitic controversy, which raged during the reign of Heraclius, influenced the monks of Raitho as well.

Epiphanius the Monk: The description by Epiphanius (Donner 1971: 74) includes details about Raitho following the Arab conquest:

A. The pilgrims' route from Egypt to Mt. Sinai did not pass through the town of Pharan, but rather went from Clysma along the coast to Raitho, and from there by way of Wadi Isla, to Mt. Sinai.

B. The tradition of the 40 martyrs of Raitho developed, and Epiphanius writes that 700 monks were slain at Raitho by the barbarians:

> ενθα ανηρεθησαν οι επτακοσιοι π(ατε)ρες υπο τ(θν) βαρβαρ(θν) (VII 4).

C. At the site, one is shown the rock cliff which Moses struck to bring forth water (apparently referring to bib-

lical Marah). It seems that the plethora of pilgrims during this time encouraged the renewal of holy traditions related to the exodus from Egypt, as well as to the earlier monasticism.

The Archaeological Remains

Site 70: The El-Wadi Oasis
5598012825 20 m asl

The El-Wadi oasis is located northeast of the town of Eṭ-Ṭur, the site of a present-day village inhabited by Bedouin belonging to all the tribes of South Sinai.

Local tradition (espoused by the Bedouin of the Jebeliya tribe) associates the site with the first monks at Raitho. The Bedouin maintain that it was from here the monks went to Bir Abu Suweira and to Eṭ-Ṭur.

Byzantine pottery was found scattered throughout the village and nearby orchards, especially sherds of cooking pots and ribbed storage jars. Remains of Byzantine buildings were discovered as well. (See Calderon, this volume.)

The Western Building
This building was found near Bir Yiḥya, the central well of the village. A local tradition associates this well with the miracle Moses enacted when the Children of Israel were camped in tents, and the water in the wells near the coast was bitter. Moses struck the mouth of the well with his staff and the water became fresh, saving the Children of Israel from thirst. This tradition does not appear in any Byzantine sources earlier than the Arab conquest; it is initially related by Epiphanius (VII, 5–6). It appears that this well is ancient and was in use during the Byzantine period. A building was erected on a small hill near the well. This large building, termed 'debaʿ' ('striped hyena') by the Bedouin, measured *c.* 18 × 24 m; it was built of fired mudbricks; its debris was preserved to a height of *c.* 4 m. It appears that this had been a public building, perhaps a church with auxiliary rooms. On the western side was a round installation, 2.5 m in diameter, built of mudbricks and covered with hydraulic plaster; it apparently was a pool. To its south was an additional plastered, smaller pit. Later Bedouin structures built on the earlier building do not allow for reconstruction of its plan. If this complex were indeed a church, it seems that it would have been associated with the well of Moses, perhaps as a martyrium on the pilgrim route to Mt. Sinai.

The Eastern Building (Ed-Deir)
This is a large rectangular structure built of fine ashlar limestones, surrounding a central courtyard. All the rooms open onto this courtyard, apparently its one central opening. The stone rooms were roofed with mudbrick vaults. The foundation of this building is Byzantine, but it was apparently rebuilt as a monastery during the Middle Ages. A few Byzantine sherds and much glazed pottery were recovered at the site.

(The Islamic Division of the Egyptian Supreme Council of Antiquities began to excavate this building at the beginning of the 1990s, but no report has yet been published.)

Additional Remains
In the north of the El-Wadi oasis, where the road from Abu Rodeis to Eṭ-Ṭur transverses it, at 55991311 UTM, are remains of additional Byzantine buildings, mostly built of mudbrick. Several are adjoined by pools and other installations.

Remains at Eṭ-Ṭur
In the Eṭ-Ṭur bay is a monastery belonging to St. Catherine's. The monastery is built on medieval remains, and no Byzantine remains were found in or near it. No remains earlier than the Middle Ages were located in a survey at the ancient tell at Eṭ-Ṭur, which is known as 'Et-Tell'. (This may change after the Japanese mission has published its conclusions.)

Site 71: Remains at Ras Raʿiya
5652511605 UTM

In the bay of Raʿiya, about 10 km south of Eṭ-Ṭur (at the site of the tomb of Sheikh Ibn ʿAqili of the ʿAliqat tribe, who perished in a fishing accident), are remains of many structures, including a square fortified enclosure measuring 80 × 80 m, with rectangular towers in each corner and in the center of each wall. The enclosure is built of stone and was preserved only to a very low height. The nature of the debris indicates that additional buildings had existed within the enclosure. Most of the stones with which the enclosure was built had been taken to Eṭ-Ṭur, where they were found in secondary use in the houses and monastery in this fishing village.

About 100 m south of the fortified enclosure, a large concentration of pottery and glass dating to the Byzantine and medieval periods was discovered in piles of debris resulting from bulldozer activity.

About 300 m south of the fortified enclosure, a bulldozer unearthed Byzantine buildings constructed of sandstone and a fallen arch composed of ashlars made of beach rock, as well as various small finds, such as amphora fragments, glass lamps and wood pieces.

Finds in the area include remains of built ramparts, docks in the bay and other structures.

The fortified enclosure is extremely similar to that of the Sinai Monastery, and in effect, both are built according to the same plan and size. Two historical sources mention public buildings in Raitho. John Bishop of Nikiu (89: 33, 34) writes:

> 33. And in the reign also of this God-loving emperor (Anastasius) impious barbarians, who eat human flesh and drink blood, arose in the quarter of Arabia, and approaching the borders of the Red Sea they seized the monks of Arâitê, and they put them to the sword or led them away captive and plundered their possessions; for they hated the saints, and were themselves like in their devices to the idolaters and pagans. And after they had taken a large booty they returned to their own country.
>
> 34. And when the emperor was informed of this event he had strong forts constructed as a defence to the dwellings of the monks, and he rendered many good services to them and all the monks of the Roman world.

An invasion by Arab tribes of Mesopotamia, Phoenicia and Palestine during the reign of Anastasius is also mentioned by Evagrius (III 36); as a result of this attack, Anastasius built the fortified city of Daras (Evagrius III 37); Cyril of Scythopolis also mentions this invasion (*The Life of Euthymius* 46; *The Life of John the Silent* 13).

Eutychius relates that, together with the Sinai Monastery, Justinian ordered his emissaries to build a church at Culzum (Clysma = Suez) and a monastery at Raᶜiya (*PG* 111: 1071).

Based on the architectural similarity between the two enclosures, it is likely that the emperor Justinian was the builder of the fortified enclosure at Raᶜiya, which served as a fortified monastery. This is confirmed by Eutychius, though the fact that Procopius failed to mention it is problematic. This conclusion is backed by the assumption that John Bishop of Nikiu, who was a Coptic monophysite with more sympathetic leanings toward Anastasius (terming him 'blessed'), preferred the latter over Justinian, who, as a supporter of Chalcedon, did not earn John's praise (cf. the opening chapter of the Chronicon (Charles 1916: 1). Furthermore, the name Raᶜiya, as written by Eutychius in Arabic, is identical to the present Arabic name of the site. This leads to two additional suppositions:

A. Following the Arab conquest, the name Raitho was a distortion of the name Raᶜiya by the Arabs.

B. The heart of the monastic center and settlement of Raitho had never been at present-day Eṭ-Ṭur, where fewer Byzantine remains have been found; nor was it at Bir Abu Suweira, as maintained by Mayerson (1980: 146). The monastic center, port and town had apparently been located in the Raᶜiya bay.

The possibility exists that the fortified structure found at the site is that described by Ammonius, who writes that the church had been fortified and was three times as high as a man (Lewis 1912: 29). However, it seems that this citadel is larger and dates later than the one mentioned by Ammonius.

(The Islamic Division of the Egyptian Supreme Council of Antiquities began to excavate this site at the end of the 1990s; no report has yet been published.)

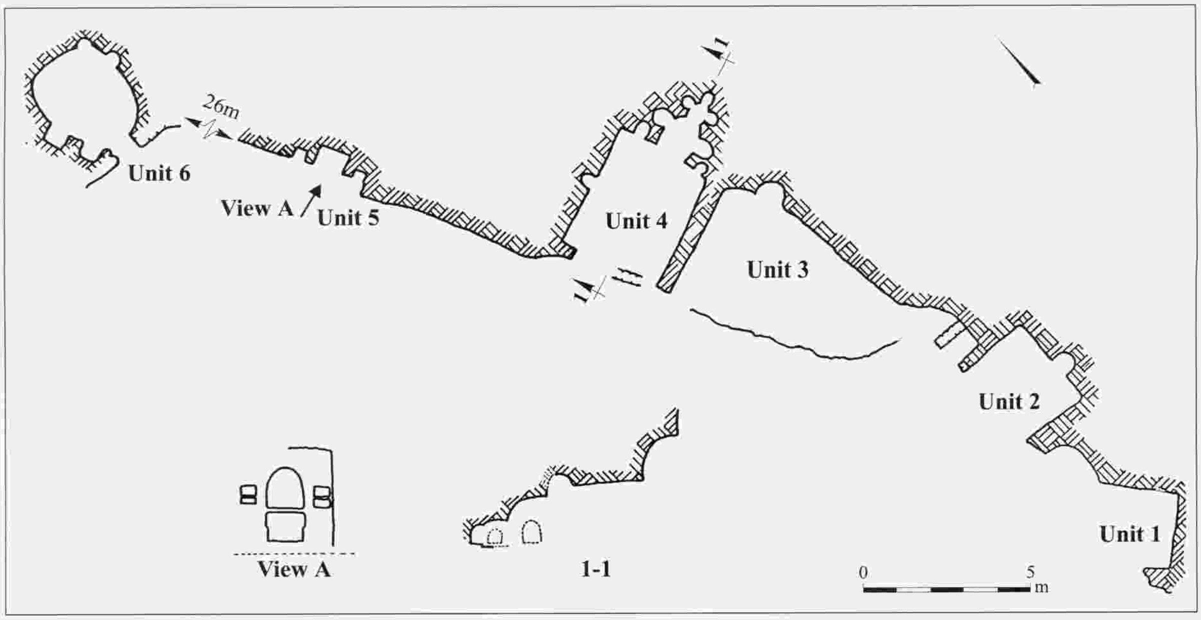
Site 72: Bir Abu Suweira
5546013060 UTM 100 m asl

About 8 km north of Eṭ-Ṭur, near a well called Bir Abu Suweira, are four monastic complexes carved in the rock, several with built walls.

(The archaeological survey was carried out by Y. Tsafrir and A. Goren. I would like to thank them for providing me with the plans and illustrations, and for permission to publish this material.)

Complex A
5555513015 UTM

Complex A (Plan 54) is near the beach, 20–40 m from the coastline. It was built on the coral reef, which was raised as a result of a geological fault, and is presently on dry land (Tsafrir 1985: 273 [Hebrew]). The complex contained six units dispersed over an area no more than 50 m long, of which mostly the eastern facade was preserved. Additional units were apparently totally destroyed by the waves. Prayer niches facing east were found in Units 2–6. Unit 4 is the most interesting. It is a rectangular carving, some 4 m long and 3.3 m wide. On its east side were three prayer niches; the two side ones small and rounded, while the central one was composed of five rounded niches, arranged symmetrically. The ceilings of the niches slope to the east. While a triple apse is a common feature in the Byzantine period,



Plan 54. Bir Abu Suweira – plan of Complex A.



Fig. 86. Bir Abu Suweira, Complex B, Unit 7, looking east.



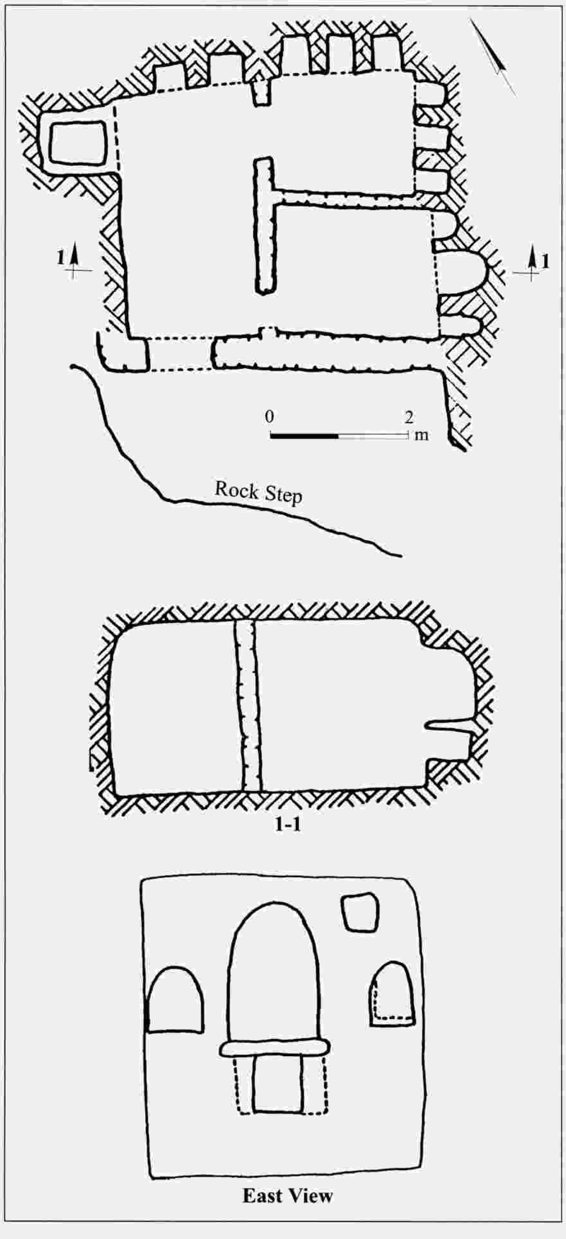
Fig. 87. Bir Abu Suweira, Complex B, Unit 7 – a hewn and plastered cistern in the northwestern corner.

an apse with five niches is unique. A similar apse, though larger and more magnificent, was found in the White Monastery in Egypt (Butler 1884: 351–359).

Complex B

55547113075 UTM

Complex B (Plan 55) was composed of one unit, carved in the rock except for its southern side, which was built. The unit had three rooms separated by built walls. The southeastern room served as a chapel, with a carved central niche. Below the latter, underneath a stone shelf, was a rectangular niche possibly meant to contain a holy relict. Flanking this niche were two additional, smaller niches (Fig. 86). The two other rooms apparently were used for dwelling, and have rectangular niches carved in their walls. In the north-western corner of the complex is a hewn cistern (Fig. 87). The entire complex was plastered. The plaster was covered with inscriptions and drawings done by pilgrims who visited the site during the Middle Ages, on their way to St. Catherine's Monastery. One of the drawings is of St. Catherine holding the wheel of torture (Fig. 88).



Plan 55. Bir Abu Suweira – plan of Complex B, Unit 7.

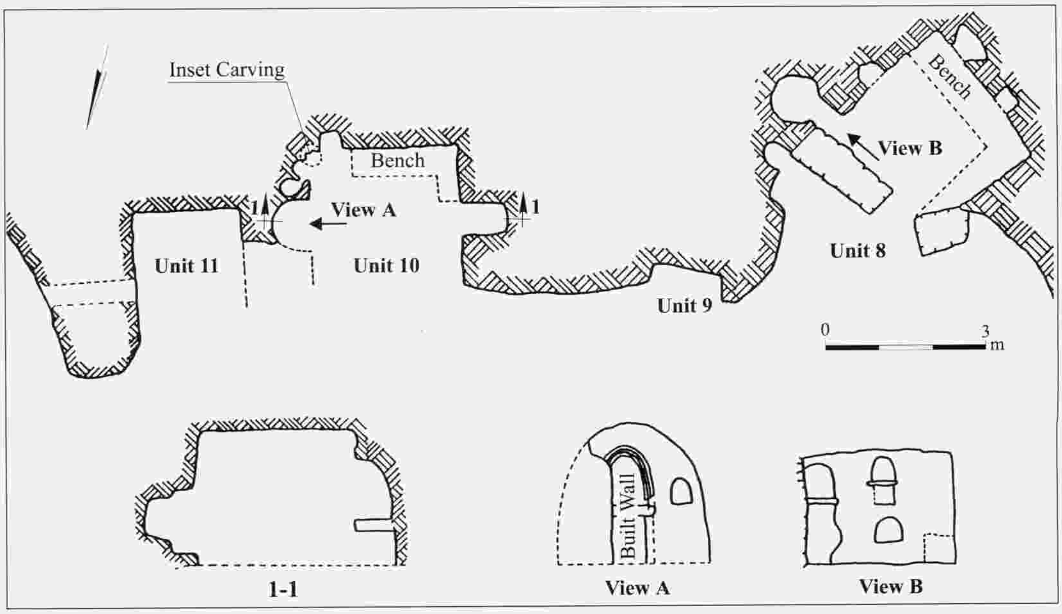
Complex C

5550313080 UTM

Complex C (Plan 56) contained four rock-carved units. Two had prayer niches, rounded on top and rectangular on the bottom, under a stone slab. These units were small and apparently served as the dwellings of two monks (in Units 9 and 11), each one having a built prayer cell (Units 8 and 10).



Fig. 88. Bir Abu Suweira, Complex B, Unit 7 – a drawing of St. Catherine.



Plan 56. Bir Abu Suweira – plan of Complex C.

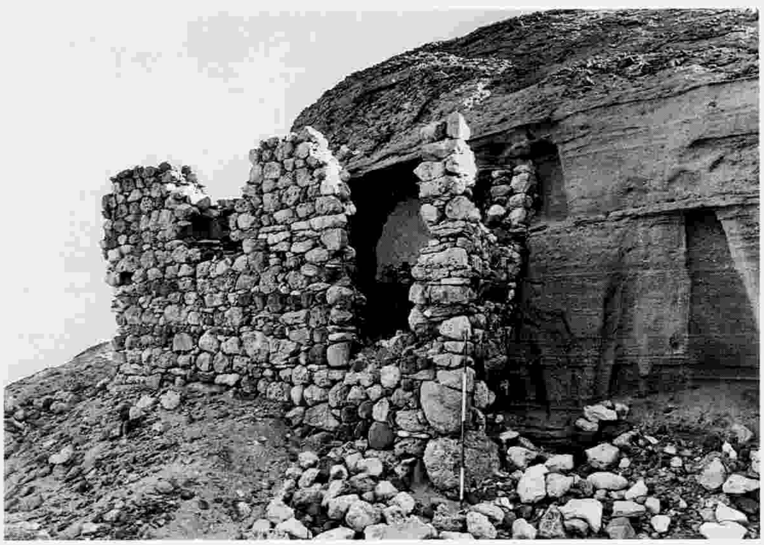


Fig. 89. Bir Abu Suweira, Complex D, Unit 12 – outer facade of the church, looking south-southwest.

Complex D

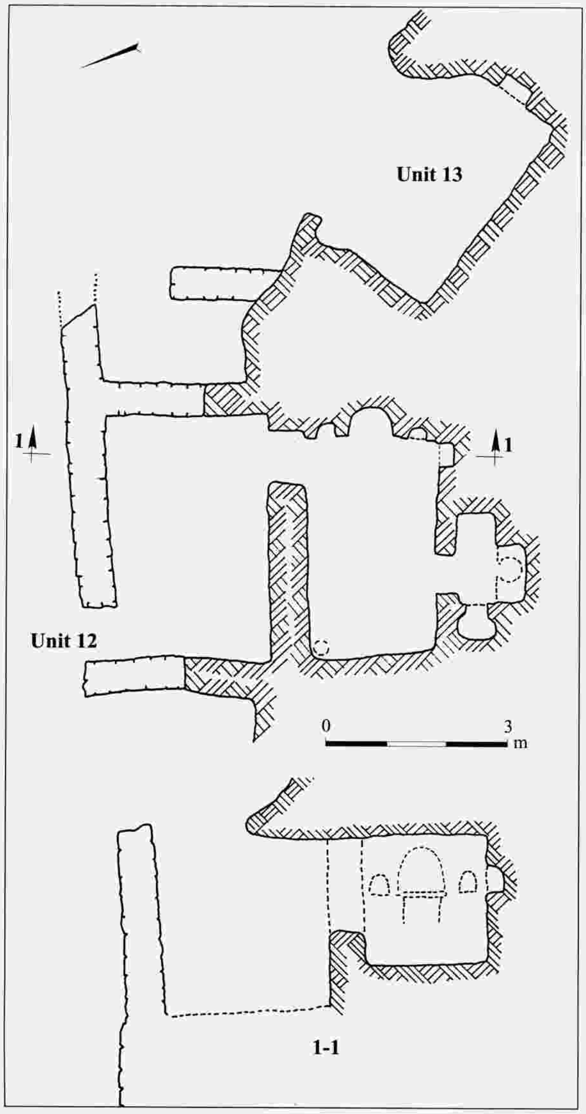
Complex D (Plan 57; Fig. 89) contained two rock-carved units and two built rooms, as well as a carved chapel with a prayer niche, which was subdivided by a stone slab. The rooms were plastered and apparently were the dwellings of two monks.

Summary

The information provided by the historical sources concerning the monastic complex at Raitho and its environs well suits the four complexes which were discovered at Bir Abu Suweira.

It seems that five or more monks inhabited Complex A, praying in the chapel in Unit 4. Complexes B, C and D each housed two monks. Thus, up to 20 monks dwelt at Bir Abu Suweira. The dwelling rooms were small, and most had niches for storage, as well as hewn cisterns.

The most common type of prayer niche was divided by a stone shelf. Such niches were found in the chapel of the Church Site at Sigilliya, and in the chapels at



Plan 57. Bir Abu Suweira – plan of Complex D.

Shaqif Ed-Deir and Jebel Ed-Deir. The arrangement of a hermit-cell with an adjoining solitary church containing a prayer niche facing east is unknown at other sites in South Sinai (see Chapter 6 for a discussion of hermit-cells).

A dwelling shared by a pair of monks, usually a monk and his disciple, is common.

It appears that this had been a colony of hermit monks, who were loosely related to each other. The center of this anchorite colony was Unit 4 in Complex A. The latter is possibly what Ammonius was referring to when he describes the monks murdered by the Blemmyes:

> And on that mountain are a number of anchorites dwelling, and there is a church [κυριακον] below the mountain; and near the mountain there were people truly heavenly who dwelt on the earth while their souls were in heaven (Lewis 1912: 13).

The available archaeological data do not permit us to date the Bir Abu Suweira complex. However, based on historical sources and analogy to the hewn cells at Celia (Egloff 1977), a fourth-century CE date may be proposed. Ammonius' use of the word κυριακον ('the house of God'), which was common in the fourth century CE, instead of the more accepted word εκκλησια, also indicates the early date of this complex (Mayerson 1980: 140).

Site 73: Bir Meʿar
5685014680 UTM 305 m asl

The site of Bir Meʿar is located near and slightly southwest of the first well up the wadi, in a granite canyon. The site and its surroundings contain modern structures, orchards and aqueducts, as well as substantial remains of Byzantine structures.

The only structure undoubtedly belonging to the Byzantine period, dated by sherds found in and near it, is a rectangular building measuring 2.50 × 5 m, whose courses were built of large fieldstones filled between with smaller stones. Later use of the building precludes reconstruction of its inner plan.

About 6 m west of the building are two adjoining *nusras* (built tombs), with cells for placing the deceased in primary burial (for the *nusras* in Feiran, see Hershkovitz 1988: 47–58). Each burial cell was 0.50 m wide and 0.80 m long. The cells were covered with stone slabs *c.* 0.70 m long each; each *nusra* was *c.* 0.50 m high.

Opposite the Byzantine structure, on the northern slopes of the wadi, are four additional *nusras*. They were well built of large stones, with walls 0.90 m thick. Each contained one burial cell. The external dimensions of each *nusra* were 2 × 4 m; the stone slab covers of each cell were preserved.

The agricultural plots are presently cultivated by members of the Bedouin tribe Aulad Saʿid. Remains of Byzantine retaining walls and conduits are visible at the base of the modern aqueducts and fences.

It is impossible to determine whether the site had been a monastery or a farm, as no church or hermit-cells were found.

Though the solitary location of the site is far from any of the monastic complexes known in the Sinai, its proximity to El-Qaʿ and Eṭ-Ṭur led us to discuss it as related to the Raitho monastic settlements.

A secondary path, leading from St. Catherine's Monastery to Deir Antush, continued through Wadi Meʿar to Eṭ-Ṭur.

Summary

The historical sources and scant archaeological finds provide a picture of a small monastic center, whose monks led a life of strict asceticism. Based on the bull of Justinian (*PG* 86: 1149–1151), it appears that the abbot of the Raitho monastery was subordinate to the abbot of the Sinai Monastery. On the other hand, it is clear from the writings of Daniel of Raitho, who describes the relationship between John Climacus and John of Raitho (*PG* 88: 598), that the spiritual status of the Raitho monks equalled that of the Mt. Sinai monks. The administrative autonomy enjoyed by the Sinai monks may be deduced from the way external parties addressed them and from their independent signature of documents during church conferences. Sinai is always represented by a single representative, in the name of 'the saints of the holy mountain in the Sinai, the hermits from Raitho and the holy community at Pharan' (*ACO* III: 37, 51, 130, 139, 146, 158, 165, 174).

The monastic center at Raitho crystallized in several centers simultaneously; it appears that the monks inhabiting Bir Abu Suweira were of an especially exalted eschatological level. Based on the archaeological evidence and historical sources, this monastic center began in the fourth century CE and continued to exist continuously until the fifteenth century CE.

Raitho was built around the bay of Sheikh Raʿiya, which was identical in size with that at Eṭ-Ṭur. This conclusion is based on the preservation of the name, the substantial Byzantine archaeological remains at the site, the citadel (which is parallelled at St. Catherine's Monastery) and the docks. Moreover, Byzantine remains are absent at Eṭ-Ṭur and its tell. During the Middle Ages, apparently due to a drought, the settlement at Raʿiya was abandoned and moved to the Eṭ-Ṭur bay, some 10 km to the north.

The name Eṭ-Ṭur, 'the mountain' (Mt. Sinai), was given to the site at a later period, since the pilgrims would pass through it on their way to Mt. Sinai. The similarity of the names is coincidental.

Aside from Ammonius, whose description and dates are problematic, Raitho was not identified with biblical Elim. It appears that the identification with Marah, as can be understood from Epiphanes, took place following the Arab conquest, when the people of Gharandal and Pharan converted to Islam. When the pilgrim route to Mt. Sinai passed through Raitho, the identification of holy sites also moved to this area, which remained Christian due to the influence of the monks.

Chapter 5

Farms and Farmhouses

Aside from the monastic settlements, whose primary means of livelihood was agriculture, secularly-owned farms were also established during the Byzantine period. (A secularly-owned agricultural area was defined when fields and orchards associated with fourth-to-seventh-century CE Byzantine finds were identified at a site lacking churches or hermit-cells.) The geographic distribution of these farms and monastic settlements can be accurately mapped.

A study of the Sinai Heights has shown that orchards – fenced agricultural plots with a water source – cultivated by the lay population were extensive, covering an average area of *c.* 1,400 sq m each. They were usually concentrated along the larger wadis, while the monks preferred the more mountainous valleys.

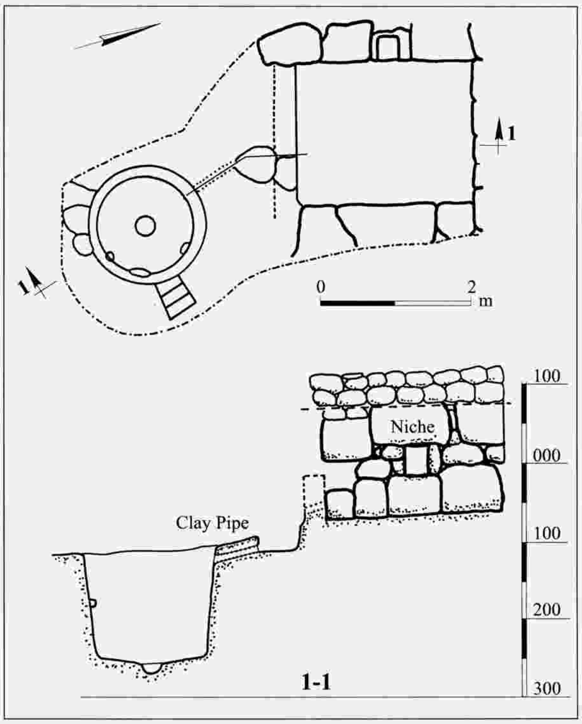
The total lack of pre-Byzantine finds in these orchards indicates that they were newly established at this time. Obviously, the Sinai monks did not adopt the art of orchard cultivation from earlier inhabitants in the Sinai, but rather it was an innovative and singular phenomenon, which they imported from their countries of origin. The monks produced only the bare minimum necessary for their personal consumption (see below, Chapter 6, discussion on agriculture).

The farms then were established by the local population to supplement the needs of the pilgrims for wine and fresh food. It is possible that the slaves brought by Justinian to protect the monasteries served as a catalyst for the development of these orchards and farms.

Wadi Ṭubuq – Winepress and Orchards
5913515800 UTM 1,790 m asl

Over a 1,050 m stretch in this wadi, located about 6 km southwest of St. Catherine's Monastery on a north–south axis, are 14 orchards, ranging in size between one and one and a half dunams. The orchards are situated at the edge of the wadi and do not block the flow path; they are protected by a strong, thick retaining wall on the bank of the wadi. Near several of the orchards, usually on the slope above, was a farmhouse.

A Byzantine winepress (Plan 58; Fig. 90) was excavated by the author in the courtyard of a Bedouin structure situated on the west bank of the wadi, at 5912515785 UTM. This is the largest winepress to be found in Sinai. The treading surface measures 1.80 × 2.30 m. The western side of the treading floor was bounded by a stone wall with a square aperture, in which the pressing beam was set. A clay pipe joined the treading surface with the plastered sedimentation pit, 0.35 m lower than the surface. The sedimentation pit is elliptic in section, 0.60 m long and 0.47 m wide.



Plan 58. Wadi Ṭubuq – plan and section of the winepress.

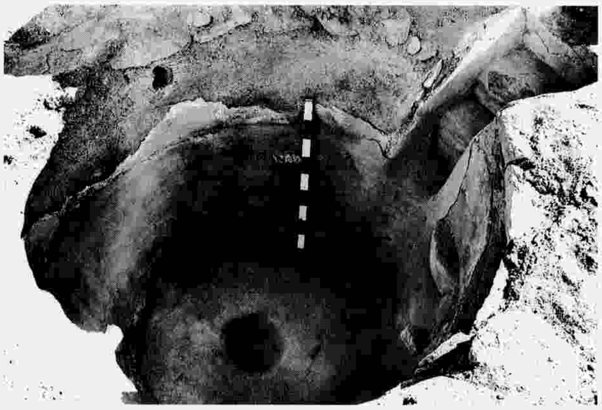


Fig. 90. The winepress at Wadi Tubog, the collecting vat.

An additional clay pipe led from the sedimentation pit to the round collecting vat (max. depth 1.50 m, upper diam. 1.52 m, lower diam. 1 m). A small depression in the center of its floor collected the dregs. The collecting vat was faced with two layers of hydraulic plaster. Three steps descended into the pool.

Amphora sherds were found in the excavation of the winepress.

Wadi Esh-Shagg
5916015650 UTM 1,870 m asl

Wadi Esh-Shagg is one of two tributaries draining into Wadi Ṭubuq. Some seven to ten orchards and three Byzantine structures were found along the wadi.

Wadi Jibal
5885015650 UTM 1,780 m asl

Along 2 km in the upper, eastern part of Wadi Jibal (distanced from the farmhouse), was a concentration of orchards, undoubtedly dating to the Byzantine period (from 5894015690 in the northeast to 5875015575 UTM in the southwest). Remains of several structures were found near the orchards. This wadi and its environs were not thoroughly surveyed.

Wadi Abu Ṭuwweita
5874016125 UTM 1,740 m asl

Along 1 km in this wadi are orchards, half of which presently belong to St. Catherine's Monastery. The ten ancient structures found in and near the wadi all appear to be medieval, and no certain Byzantine architectural remains were identified. Few sherds of Byzantine amphorae, storage jars and cooking pots were found in the orchards.

Wadi Ṭinya
5885516050 UTM 1,790 m asl

Wadi Ṭinya is one of the upper tributaries of Wadi Tala'a. In the wadi, to the west of Jebel 'Abbas Basha, is a concentration of orchards, which had originally been Byzantine. Near the orchards were two ruined structures, which also date to this period. No cells were found in the area, though the existence of a monastery in this wadi cannot be entirely discounted.

Abu Silla
5898516320 UTM 1,370 m asl

The village of Abu Silla is built on the upper limits of Naq'ab El-Hawa, where the ascent opens to the Er-Raḥa Plain. The site has a concentration of orchards and numerous Byzantine structures. Due to later construction we could not conduct a survey of the village. It may be assumed that during the Byzantine period, aside from the farm, the site had an inn which serviced the pilgrims, since the site was situated on the main road from Pharan to Mt. Sinai.

'Ein Loza (at Serbal)
5626016970 UTM 1,825 m asl
Ḥajar Lombardi
5636016780 UTM 1,650 m asl

These two valleys, situated in the heart of the Jebel Serbal Massif, contained two fenced orchards with Byzantine pottery. A cell located near Hajar Lombardi possibly accommodated a hermit (Fig. 91). Similarly, near 'Ein Loza – the sole perennial spring in this mountain – was a cave which was inhabited during the Byzantine period.

A road extends from 'Ein Loza through the summit of Jebel Serbal. Near this road – where there is a view to the east to Jebel Musa – were two prayer niches (Finkelstein 1981: 90). Note that the summit of this mountain contained remains of a Nabatean temple



Fig. 91. Ḥajar Lombardi – a hermit-cell and agricultural plot.

(Avner 1982: 25–32), with no evidence of Byzantine construction.

The lack of any kind of prayer edifice appears to rule out the presence of monks on the mountain.

Wadi Rim
5664516980 UTM 1,050 m asl

Three orchards with springs nearby were found up this wadi, near the road connecting Wadi Sigilliya with the town of Pharan. It is difficult to determine whether they were Byzantine.

Wadi Nuqra
5897017040 UTM 1,210 m asl

Wadi Nuqra is the central valley which drains the Freʿa Mountains. It is a tributary of Wadi Solaf, which drains into Wadi Feiran. The upper limits of this wadi contain a concentration of orchards in which Byzantine pottery was found. An ancient structure found near one of the orchards apparently was originally Byzantine. It is possible that the site had been a monastery, though only excavation can clarify this suggestion.

CHAPTER 6

DISCUSSION, CONCLUSIONS AND SUMMARY

The aim of this section is to present as complete a picture as possible of the distribution of South Sinai monastic settlements, as well as their situation, size, inner organization, names, development, material culture and economic base. Our discussion is based on the archaeological data presented above, the historical sources, and studies on the Byzantine monastic movement throughout the Christian world, particularly the East.

Even at the peak of the monastic movement in South Sinai, the number of monks could not have surpassed a thousand (see above, Tables 3–5), and was closer to a total of some 600 – about 530 in the monastic settlements surveyed above, and several dozen more in monastic settlements possibly not yet discovered. The majority lived in the center around Mt. Sinai, while there were three other concentrations: Pharan, Umm Shomer and Raitho.

The prestige of Sinaitic monasticism stemmed from the relationship of Sinai to Moses and Elijah – its first saints – as well as the sanctity of the site of 'the Covenant'. The unique natural environment of high altitude with majestic mountainous scenery, which made man feel close to the Almighty, contributed to this status as well. The relatively small number of Sinai monks enhanced their high standing and reinforced their spiritual standing.

DISTRIBUTION OF MONASTIC SETTLEMENTS IN SOUTH SINAI

Monastic Settlements in the Granite Massif

In the center around Mt. Sinai, forty-one monastic settlements have been described: fourteen at Jebel Sufsafa, four at Jebel Ed-Deir, the Sinai Monastery, some five in the Er-Rabba and Er-Raḥa Plains, five in Wadi Eṭ-Ṭlah and its tributaries, two in Wadi Abu Jerus, five in the Freʿa mountains, three in Wadi Jibal and its tributaries, one at Jebel Bab, and one at Jebel Ḥuzeima. Aside from the monastery at Jebel Ḥuzeima, which was built on gray granite, all the others were built on granite of the Iqna Catherine pluton. This pinkish-red granite has high ortoclase quality; it creates a rugged massif with stretches of level rock surfaces and steep niches containing coarse-grained arcosic soil.

The four monastic settlements of the Sigilliya center were built on Ṣaḥara granite, which is similar to the Iqna Catherine granite. The nine monastic settlements of the Jebel Umm Shomer complex were erected on Girgar granite, which is also red, with a similar morphology. Thus, these three monastic centers were established on red granite, which formed lofty, sequestered massifs.

The monastic settlements located in this setting may be categorized into two types: (1) those built in the mountain valleys (*farsh*) near the summits, and (2) those built in the wadis which drained the mountains and in the valleys which followed the geological faults between the mountains. No monastic settlements were built on the summits.

A sub-division which is emphasized by John Moschus in the *Limonarion*, and which is mentioned in other sources as well, is of the monastic settlements founded on or near the pilgrim circuit, and those which were removed from these routes and were not directly dependent on them for their livelihood. While it is clear that this division is not unequivocal, we view all the Mt. Horeb monastic settlements as related to the pilgrimage movement, while possibly the monks inhabiting the hidden mountain valleys did so in order to avoid the pilgrims and live in seclusion. The monastic settlements

of Wadi Muwajed were isolated and very remote from the fourth to the beginning of the sixth century CE. Only toward the end of the latter century did many pilgrims ascend to Mt. Sinai via this wadi, thus disturbing the seclusion of the monks.

Selection of a Monastic Site

Aside from Mt. Horeb and the site of the Burning Bush, considerations other than holiness were what determined the site of a monastery. The determinants were environmental factors, especially soil, water and the landscape. Since the major base of Sinaitic economy was food production, particularly cultivation of fruits and vegetables, it was necessary to build the monastic settlements at sites with proper soil and sufficient water. As described in the introduction to this study, suitable conditions could be forged in the red granite rock, albeit through the use of hard labor. A glance at the distribution map (see Plan 3) of the monastic settlements shows that all the red granite massifs were occupied by monks, some with high concentrations (such as Jebel Ed-Deir, Freʿa and Jebel Bab), and others less densely settled (such as Mt. Serbal and Jebel Umm Shomer). No monastic settlements were erected on massifs composed of rock other than the red granite, even when the former were located near Mt. Sinai, e.g. Jebel Muneija, Jebel Catherine and Jebel Abbas Basah. An exception to this rule is the monastery at Jebel Ḥuzeima, which was built on gray granite. However, the latter site had abundant water and fertile soil, and the monastery was situated on a main road leading from Mt. Sinai to Dahab.

The holiest of all summits, Mt. Sinai, is composed of volcanic rock. Not only was no monastery established there, but it was forbidden to remain there overnight. Contrary to this, the monastery at Mt. Horeb demonstrated the optimal combination of the three components necessary for the establishment of a Sinaitic monastery – soil, water and a view – as well as a holy tradition.

The view fulfilled an important role in the choice of a site for a monastery, with most built at locations which afforded an impressive vista of lofty cliffs. The uniqueness of early Sinaitic monasticism lies in the deep-rooted belief in the sanctity of the mountain of God, as well as the mystical tendency of true communion with the surrounding mountains and sights (Tsafrir 1993: 315–333). For example, El-Karm and the Church Site at Sigilliya, as well as Deir Antush, were intentionally situated at a spot with the best view of the summit. This location served as a clock, which absorbed the first rays of the sun in the morning and the last rays in the evening (like an Egyptian obelisk), and dictated the monks' ritual schedule.

The desire for seclusion also determined the choice of site. It can be said that the farther the monastic settlements were from Mt. Sinai, the smaller they were, the farther apart, and the more widely dispersed cells they contained.

An additional consideration was the need to avoid confrontation with the Bedouin. The monastic settlements were therefore not built in the main grazing areas, and not all the water sources were enclosed within their orchards. The road system accessing the monastic settlements was suitable for both pedestrians and donkey traffic, though not for camels.

Monastic Settlements Not Built on Granite

Monastic settlements not built in a granite setting were discovered at the Feiran Oasis and at Jebel Ṭaḥuna: Tell Maḥrad – founded on a clay hill, and Jebel Ṭaḥuna – on metamorphic rock. The monastic center at Raitho was erected on sedimentary rock (Bir Abu Suweira) and El-Wadi and Sheikh Raʿiya on the alluvial plains near the sea.

The acropolis monastery at Tell Maḥrad was an urban monastery. In our opinion, it was not directly related to the monastic movement in the mountains of Sinai, just as the monastic settlements in Jerusalem were not directly connected to those of the Judean Desert. The monastic settlements at Jebel Ṭaḥuna were built there due to the sanctity of the mountain, as well as the pilgrim movement, and the immediate relationship with the town of Pharan and the Wadi Feiran Oasis with its Saracen population.

The Raitho monastic settlements were established there due to the seclusion the area afforded the monks during the fourth century CE. The region demonstrates a rare combination of mountains, sea, oases and solitude, which were ideal conditions for a limited community of Anchorites.

The Relationship between the Wadi Sigilliya Monastic Settlements and the Pharan Center

The Wadi Sigilliya monastic settlements were situated about 40 miles from Mt. Sinai (a two-day journey on foot), and about 12 miles from the town of Pharan. Two roads leading from Pharan and Mt. Sinai converge at Wadi Rim into a path which arrives at Wadi Sigilliya.

Thus, it was possible to reach Sigilliya from Mt. Sinai without having to cross the Wadi Feiran Oasis.

It appears that during its initial phase, the Sigilliya center had been affiliated with Pharan. However, when the subordination of the Mt. Sinai monks to the Pharan bishop was discontinued during the reign of Justinian (*PG* 86: 1149–1151), this relationship was curtailed, and finally severed immediately following the Arab conquest.

The monastic center at Sigilliya apparently existed uninterruptedly until the tenth century CE – well after the destruction of the town of Pharan. Thus, it is clear that at least during their initial stage, the Wadi Sigilliya monastic settlements were affiliated with the Sinai Monastery rather than with Pharan.

If the Sigilliya monastic settlements were indeed called 'Maloucha', as Anastasius claimed, then it is clear that at the beginning of the seventh century CE, at the time that John from the Sabas Monastery (in the Judean Desert) lived there, they were directly connected with the Mt. Sinai monastic center. (We tend to believe that the center at Sigilliya was called 'Sengis'.)

Summary

The mountain monastic settlements in South Sinai were all built in mountainous valleys and in granite wadis. About 500 monks lived very widely dispersed in the lofty, secluded massif between Jebel Ḥuzeima in the east and Sigilliya in the west, Freʿa in the north and Wadi Fraʿiya in the south, an area of *c.* 2,200 sq km. Thus, though there was an average area of 4.4 sq km per monk, each in fact inhabited a cell no more than 4 or 5 sq m and cultivated an agricultural plot averaging *c.* 323 sq m (see below). This extremely sparse density is unparallelled throughout the Christian world.

Size and Structure of the Monastic Settlements

The definition 'monastery' was used for every site dating to the Byzantine period which contained both a chapel and hermit-cells. A site with a chapel, but lacking cells or other structures meant for seclusion, was not defined as a definite monastery – as the chapels at Jebel Ṭaḥuna and the possible church at El-Wadi. A site with hermit-cells but no chapel was considered part of a dispersed monastery covering larger areas – as El-Karm at Sigilliya.

The monastic settlements in Sinai are classified in three size categories: small, inhabited by two to five monks; medium, with some ten monks; and large, occupied by fifteen monks or more.

The Small Monastic Settlements

There were eighteen small monastic settlements in Sinai: three at Jebel Sufsafa, about ten in the mountains around Mt. Sinai, four in the monastic center around Jebel Umm Shomer and one in Wadi Sigilliya. Thus, it would seem that less than one hundred monks occupied the small monastic settlements. However, the total number of monks living together in small groups was larger. There are many complexes, such as El-Karm in Sigilliya, Complex 18 at Jebel Sufsafa, Wadi Umm Serdi, Climacus' cell, Deir Ojar and others, in which up to five monks lived, but had no chapel; thus they were not considered autonomous monastic settlements, despite the fact that in their daily lives there was little difference between them and the small independent monastic settlements.

The small monastic settlements contained three basic components: a prayer structure with two or three rooms; hermit-cells, which were widely spaced, though one was usually close to the chapel; and an agricultural system including one or more small plots, dams supporting the plots, and an irrigation system composed of a spring from which a channel extended to the plots, or a well in or at the edge of the plot.

The Medium-Sized Monastic Settlements

There were eighteen medium-sized monastic settlements in the South Sinai mountains: four at Jebel Sufsafa, nine at the Mt. Sinai center, four at the Jebel Umm Shomer complex and one at Jebel Ḥuzeima.

These monastic settlements contained a larger chapel, which in most cases had two stories. The monks lived in hermit-cells, which were built under boulders or cliffs, as well as in two- or three-roomed dwellings meant to house a monk and his disciple. In most cases, there was no eye contact between the structures.

The agricultural system was more complex, and often contained a winepress, oil press or lime kiln. The agricultural area contained several small orchards located near the hermit cells or buildings.

The Large Monastic Settlements

There are about a dozen large monastic settlements in South Sinai: one at Sigilliya, the monastic complex at

Jebel Ṭaḥuna, three at Jebel Sufsafa, four around Mt. Sinai, the Sinai Monastery and the fortified monastery at Raitho. Each of these large monastic settlements (aside from the Sinai Monastery and the monastic settlements at Ṭaḥuna and Raitho) was inhabited by 15 to 30 monks. Thus the designation 'large' is relative to the other monastic settlements in the Sinai Mountains, but not to large monasteries in Egypt or elsewhere.

Jebel Sufsafa was home to several large, important monastic settlements: St. Elijah's Valley, St. John's Valley and Complex 100.

Two types of large monastic settlements were distinguished: those comprising a single complex, such as Deir El-Arbaʿin, St. Elijah's Valley, and Jebel Ed-Deir, and those made up of several complexes, composing a central unit with a church, and additional units located several hundred meters from the center, including hermit-cells and agricultural plots. Such monastic settlements were found at the Church Site at Sigilliya; at Jebel Bab, with ʿEin Najila in its center; Complex 100 at Sufsafa; and Deir Rummana at Freʿa.

There were no large monastic settlements in the monastic center at Jebel Umm Shomer.

The Church Structures of the Sinai Monastic Settlements

Characteristic of the Sinai monastic settlements are chapels housed in simple, modest structures built chiefly of fieldstones, plastered and painted white or red; no decorations such as floor or wall mosaics were evidenced. These structures fulfilled functions other than cultic, and contained storerooms, dining rooms(?), living rooms, agricultural installations, and even chicken coops adjacent to the external walls. No basilical churches were built in the monastic settlements. The few basilicas that did exist were found only at holy sites, such as Mt. Sinai, the Burning Bush, Rephidim and the town of Pharan.

The buildings are one- or two-storied. Most of the roofs were of wooden beams and reeds, covered with beaten earth; only the structures at Jebel Sufsafa and Wadi Eṭ-Ṭlah had tile roofs. The floors were of beaten earth or plaster.

A common model of such a structure had two elongated spaces oriented east–west, one-storied in the southern space and two-storied in the northern space (the churches at Sigilliya, ʿEin Najila and Deir Abu Mghar). In such cases, the roof of the southern, ground floor served as an entrance porch to the second floor, which contained a chapel or two. The rooms on the ground floor of these buildings were used for dwelling and storage; an exception is the church building at Sigilliya, which had a chapel on the ground floor and a church on the upper floor.

The smaller monastic settlements usually had a building with one room, containing an inner prayer niche. There are some cases where an entrance corridor leads to the prayer room: cf. Shaqif Ed-Deir, the two chapels at Jebel Ṭaḥuna, Farsh Ḥabash and El-Khirbe.

All the entrances in the churches which were excavated faced south: cf. Sigilliya, ʿEin Najila, Fraʿiya, Deir Antush, Deir Abu Mghar and Shaqif Ed-Deir. Such was the case in the numerous churches discovered in the surveys: Complex 220, Farsh el-Loza(?), Deir Sigilliya(?), El-Khirbe, Deir Rummana, Deir Rumḥan, the boulder building at Jebel Ed-Deir, the chapel at Jebel Ed-Deir, and apparently also in the 'farmhouse' in Wadi Jibal. The phenomenon of entrances facing south was found in Egypt, in the church of St. Anthony, at Deir El-Aḥmar and Deir Abba Ḥadra (Walters 1974: 62, 65, 66). However, most of the church openings in Egypt face west; thus, the southern entrance most likely had its origin in Sinai. Entrances to Bedouin tents and buildings always face south, in order to absorb the first rays of the sun and to warm the interior after the chilly desert nights. It appears that this local fashion, which suited the climate of the mountains of South Sinai, influenced the monks in situating the entrances to the churches facing south.

Aside from the 'farmhouse' in Wadi Jibal, no room was found which could have served as a kitchen. Thus, it appears that the custom of common meals was not practiced in the hermit monastic settlements in the Sinai.

The Chapel Room in the Church Structure

The chapels were mainly long rooms, usually entered through the center of the southern wall, though several had openings in the western wall. The prayer niches always faced east, aside from ʿEin Najila, where it faced northeast.

Three types of prayer niches were distinguished:

A. An internal niche which begins at 0.50–1 m above floor level. It is divided by a stone shelf into two. The lower part was enclosed by a built wall, and accommodated the bread and wine for Mass. The stone shelf dividing the niche served as the altar table. The upper compartment was open, and the morning sun's rays infiltrated the chapel through this glass aperture, which was either smooth or decorated with a geometric or

floral design. This setup was common in the monastic settlements at Bir Abu Suweira (Tsafrir 1985: 271–274 [Hebrew]), and is also found at Sigilliya and Shaqif Ed-Deir.

B. A larger internal niche, rounded and arched on top, flanked on both sides by smaller, rectangular niches. This type has several variations, and was found at Deir Antush, ʿEin Najila and the monastery at Jebel Ed-Deir.

C. An external niche, adjoined by a rectangular prothesis niche on its north, the latter used to house the bread and wine. This type was found in the church on the upper story at Sigilliya and at Wadi Fraʿiya. It also existed in the chapels on both sides of the aisles in the Sinai Monastery church.

The chapel at Farsh Ḥabash contained a small niche in the southern side of the central apse. Outside of Sinai, such a layout is known in the prayer niches in the dwelling cells at the monastery of St. Sabas (Patrich 1989: 38 [Hebrew]).

A permanent place for a reliquarium was located in the center of the apse in the monastery in Wadi Fraʿiya. It is not clear whether it contained the relicts of a local saint or remains which were brought to Sinai.

Stone-built and plastered baptismal fonts were found in the lower chapel at Sigilliya and in the chapel at Wadi Fraʿiya. No monolithic stone basins were discovered. Apparently, these basins were used for baptism, and by the monks and pilgrims during prayer.

A built, plastered table stood adjacent to the southern wall, in the eastern corner of the lower chapel at Sigilliya and at ʿEin Najila; the function of this table is unclear.

A chancel screen composed of plastered mudbrick was uncovered in the lower chapel at Sigilliya. Though no screens have been preserved in other chapels, it appears that there had been at least some such screens, built of mudbrick or wood.

Rectangular inner niches are very common in the chapels, as well as in the dwellings, even in hermit-cells. They measured from some 0.30 × 0.30 m, to approximately 0.50 × 0.70 m. These niches were used as closets, and were usually found in two of the room's walls.

Square windows containing round glass panes set in a square, plaster frame were found in all the excavated chapels. Some windowpanes were small, *c.* 15 cm in diameter while others reached *c.* 35 cm in diameter. Several were decorated with geometric or floral patterns (see Y. Gorin-Rosen, this volume).

The chapels were illuminated mainly by glass lamps, which were suspended from the ceiling on fine bronze chains. The use of clay lamps was very rare, both in the chapels and in the dwellings.

Two chapels in one building were found in the Church Site at Sigilliya, at ʿEin Najila and in the monastery at Jebel Ed-Deir.

Hermit-Cells and Dwellings

Surveys of the mountainous monastic settlements in South Sinai revealed 137 cells and one-room dwellings (10 of the latter are doubtful), 31 two-room houses, and 24 buildings with three or more rooms (not including the buildings with a chapel).

About a quarter of the cells, a third of the two-room houses and half of the large structures were at Jebel Sufsafa. The larger buildings were found mostly at the center around Mt. Sinai.

Hermit-Cells

Three main cell types are distinguished:

A. Cells built in rock shelters adjacent to the granite cliff.

B. Cells built under large boulders.

C. Square houses containing one room. Such a secluded structure is rare, and is found only in areas void of large boulders or rock shelters (which are very common in Sinai).

Each cell had at least one built wall and a small opening facing no particular direction. Several cells had windows and inner niches used either for storage or as a shelf for a water jug. Most of the cells were too small to allow for any inner division but a few had a low parapet separating the sleeping quarters from the cooking area (Sigilliya, Cell A at El-Karm). About half of the cells were too low to permit the inhabitant to stand erect. Most of the cells lacked a sleeping bench, and the monks probably slept on straw mats spread on the floor. The only sleeping benches found in Sinai were at Shaqif Ed-Deir: one (1.35 m long) in a hermit-cell and the other (1.05 m long) in a room adjoining the chapel. No doors were found in the cells, though several had wooden doors to prevent animals from entering and to facilitate heating during the freezing winter nights. Two sources mention such doors: Ammonius, in his description of Sabas' cell at Raitho (Lewis 1912: 22) and John Moschus in the *Limonarion*, *Narrative* 127. Cells with an entrance room, or an additional room, were very common in the monastic centers in Egypt (Walters 1974: 102–110), the Judean Desert and Asia Minor (Hirschfeld 1992: 176–190 with additional references). However,

they are very rare in Sinai. There is one such cell at Jebel Sufsafa (Finkelstein 1985: 55, 56). A common arrangement is a cell with a small terrace.

Some of the cells adjoined small gardens. Some were remote and secluded from the parent monastery. Six hermit-cells were found at Deir Antush, with no eye contact between. Indeed, Nilus relates that the monks did not live in proximity to each other (*PG* 79: 620, 621). The slave mentioned in Nilus' narration describes both a cell in a cave adjoining a small building (*PG* 79: 649B) and a small seclusion structure in a small oasis. The Saracens asked the monk who dwelt there to show them the monastery, which was hidden from them (*PG* 79: 652B). Thus, it is clear that there was no eye contact between the cell and the church. The monks usually built their own cells. Ammonius relates how Father Joseph of Aila built his cell with his own hands, near Raitho; his disciple dwelt nearby. It was customary to bury the monk in his cell, and for him to bequest it to his disciple. This was diametrically opposed to the practice at the monastic settlements of St. Sabas in the Judean Desert, where, following the monk's death, his possessions and cell passed to the monastery (Sabas, *Regulations* 169).

Egeria relates that the monks invited her to their cells; thus it appears that it was permitted for women to visit the cells.

Several cells have incised or painted crosses on the walls. None of the Sinai cells had inner prayer niches.

Neither clay nor glass lamps, or illumination niches were found in any of the cells or dwellings, thus indicating that the cells were not lit at night. This, combined with the modesty of the cells, tallies well with Gerasimus' instructions to the cell dwellers (*The Life of Gerasimus* 2–4). He specifically bids them to refrain from illuminating their cells. On his death bed, Giorgius of Arseleus implored his disciple to light a lamp in his cell (Anastasius, *Narrative* 21), though this appears to have been exceptional.

The lack of prayer niches and means of illumination in the cells indicate that, despite the solitude, remoteness and modesty, the inhabitants were not anchorites, but rather monks who maintained contact with the monastic communities to which they belonged, the likes of which Nilus describes so well (*PG* 79: 620–621).

Dwellings

About 30 two-roomed houses were discovered in the monastic settlements of South Sinai. The rooms were rectangular, and measured an average of 2.80 × 3.50 m each.

In most cases, there was a single entrance to both rooms, or an entrance adjoining both. The rooms contained inner niches to store the monk's personal belongings, but had neither sleeping benches nor other furniture or equipment; the stray finds were pottery sherds of water jugs and storage jars.

In our opinion, these houses were occupied by a monk and his disciple, rather than the customary bedroom and guest room at sites outside of Sinai (Hirschfeld 1992: 176–190). This was probably a result of the extreme remoteness of most of the monastic settlements, which made it so difficult for a lone individual to cope with the harsh desert conditions. It became customary for a young novice monk, after a period of apprenticeship outside Sinai, or in the Sinai Monastery, to become the disciple, and in fact attendant, of an elderly monk. The historical sources abound in such examples, beginning with the *Apophthegmata*, which explains that Netra was Silbanus' disciple. After his teacher and the other disciples moved to the Gerar region (near Gaza), he remained in Sinai with his own disciple, who continued to serve him even after he was appointed the bishop of Pharan (*Alphabeticon Netras*: *PG* 65: 511, 512).

Nilus (*Narrative* 4) relates the tale of two monks who lived together near the Burning Bush, and of a young monk who lived nearby and served them (*PG* 79: 624). Ammonius writes that Father Pseuas had initially been Sabas' disciple at Raitho (Lewis 1912: 20), and that Father Joseph of Aila built his own cell, but that his disciple did not live with him, but rather nearby (Lewis 1912: 21). Ammonius stresses that Father Joseph was an exception in that his disciple did not live with him, so it is clear that shared lodgings were the norm. In the *Limonarion* (116, 121 and 127), there are tales of a monk and his disciple at Raitho and Mt. Sinai. John Climacus was Martyrius' disciple, and eventually, Moses became the former's disciple (*PG* 88: 600–602). Anastasius the Monk (Nau 1902b: 60–89) relates numerous stories entailing the shared dwelling of a monk and his disciple (*Narratives* 1, 2, 5, 6, 8, 11, 13, 15, 21–23 and 34).

In most of the medium-sized and large monastic settlements where there was no central structure containing dwelling rooms alongside the chapel, there was a two-roomed building nearby. It appears that this served as the house of the monastery's abbot and his disciple.

Large houses were not common in Sinai, and are found mainly in concentrations of farms owned by the lay population. Exceptionally, 24 large structures were dis-

Table 6. Names of Monastic Settlements and Areas in Historical Sources and Inscriptions

Name	Source	Site Description	Identifications
Metemer - - - - - - - - - - - - - - - Metmor – Μετμορ	Aramaic *Apophthegmata*, *CSCO* 353: 132 - - - - - - - - - - - - - - - Anastasius – 25	A small monastery in a ravine with an orchard *c.* 20 miles from Mt. Sinai	Deir Antush or Deir Rumḥan
Populus	*Vita Galaktionis: PG* 116: 101	Near Mt. Sinai	Jebel Sufsafa
Shelal Monastery – Μπνη Σαλαηλ	Nilus, *PG* 79: 664	Near Mt. Sinai	In the valleys close to the Sinai Monastery
Elim – Ατλιμ - - - - - - - - - - - - - - - Belim – Βεληµ	Nilus, *PG* 79: 664 - - - - - - - - - - - - - - - Anastasius – 20	Near Mt. Sinai, home to several hermit monks.	In the valleys close to the Sinai Monastery
Tola – Θωλα - - - - - - - - - - - - - - - - Tolas – Θολαζ	Nilus, *PG* 79: 664 - - - - - - - - - - - - - - - - Daniel of Raitho, *PG* 88: 597	5 miles from Mt. Sinai	Wadi Eṭ-Ṭlah
Aze – Αζε	Nilus, *PG* 79: 664	Near Mt. Sinai	In the valleys near the Sinai Monastery
Beth-Rabi Βησθραμβη - - - - - - - - - - - - - - - - Getrabbi – Γεθραββι (Γεθραμβει)	Nilus, *PG* 79: 664 - - - - - - - - - - - - - - - - Ammonius, Combefis 1660: 91	Near Mt. Sinai	Deir Rabba
Hobar(?) or Horeb Χοβαρ, (Χωρηβ)	Ammonius ibid	Near Mt. Sinai	Jebel Sufsafa
Kodar – Κοδαρ (Κηδαρ)	Ammonius ibid	Near Mt. Sinai	
Tramben – Θραμβν - - - - - - - - - - - - - - - Turban – Τουρβαν	Ammonius ibid - - - - - - - - - - - - - - - - Anastasius – 5	- - - - - - - - - - - - - - - - A small monastery, 6 miles from Mt. Sinai	Near Naqb El-Hawa(?)
Sidim - - - - - - - - - - - - - - - Sideh – Σιδδη Valley of Sideh – ..χειμαρρω του Σιδδη	Climacus, Rung 7 - - - - - - - - - - - - - - - Anastasius – 22 - - - - - - - - - - - - - - - - Anastasius – 23	70 miles from Mt. Sinai - - - - - - - - - - - - - - - - A small monastery with cells and orchards, a day's walk from Raitho	Wadi Muwajed(?) or one of its tributaries, Fraʿiya or Shaqif Ed-Deir(?)
The Gouda Desert – Γουδδα ερημοζ	Daniel of Raitho, *PG* 88: 608 - - - - - - - - - - - - - - - - Climacus, *PG* 88: 720 - - - - - - - - - - - - - - - Anastasius – 6, 31	A desert 15 miles from the Sinai	The Freʿa mountains or Wadi Abu Jerus
Arselaus – Αρσελαοζ	Anastasius – 8–12, 15–16.	A large monastery near Jebel Catherine or Jebel Rumḥan	Deir Rumḥan(?)

Table 6 (continued)

Name	Source	Site Description	Identifications
Maloucha – Μαλωχα	Anastasius – 13–14	A small monastery with an agricultural plot in a steep impassable canyon, 40 miles from Mt. Sinai	Deir Umm Butme (more likely) Wadi Sigilliya(?)
The Highest Desert – ακροτηρη ερημοζ	Anastasius – 17		The Jebel Bab monastic settlements
Sengis – Σεγγιζ	Inscription on storage jar at Sigilliya		Sigilliya monastic settlements
Israel	Aramaic *Apophthegma*, *CSCO* 353: 143	A monk living in a cave above a place called 'Israel'	Near Raitho

covered in the monastic settlements lacking chapels; they belonged to the large monastic settlements.

In our opinion, these large structures served not merely for habitation, but also housed agricultural and industrial installations and storerooms for agricultural produce, as well as one or two rooms for the monks' dwelling. This conclusion was reached after the excavation of Buildings B and C at Deir Abu Mghar. These structures may have perhaps played a role in the manna industry and in the distribution of ampulae to the pilgrims. The inner plan of several large buildings at Jebel Sufsafa indicates that they were not suitable for habitation.

The Agricultural System

Every monastery in the Sinai Mountains had agricultural plots, indicating that the main activity of these monastic settlements was agriculture (aside from the two cells in Wadi Qen, where the monks apparently cultivated land in Wadi Jibal). Thus, it is impossible to describe the monastic settlements in Sinai without referring to the orchards, which were a necessary and integral part of monastery livelihood.

The Names of the Monastic Settlements and Geographical Identifications

The historical sources rarely use names when referring to the monastic settlements in the Sinai. Only seven sources mention names other than Pharan, Raitho, Mt. Sinai and the pilgrimage sites in the vicinity: Simeon Metaphrastes, *Apophthegmata Patrum*, Ammonius, Nilus of Sinai, Daniel of Raitho, John Climacus and Anastasius the Monk.

Table 6 presents seventeen names of monastic settlements or areas of monastic seclusion, which appear in the historical sources and inscriptions that were discovered in Sigilliya, as well as data gleaned from the sources concerning the size and location of the site and proposals for its geographical identification:

Of these names, six appear in two different sources with small variations: Metemer – Metmor; Tola – Tolas; Beth-Rabi – Getrabbi; Tramben – Turban; Sidim – Sideh; Elim – Belim. Some of the names are of biblical origin: Elim/Belim, Horeb and Israel; several are possibly of Greek origin: Tolas, Sideh, Gouda, Arselaus and Sengis; and several are apparently of Syriac–Aramaic origin: Metmor, Shelal, Getrabbi and Maloucha. It appears that only a few sites were known by Nabatene–Arabic names, which points to a severance between the monastic community and the Saracen population, as the monks clearly did not use local names which must have existed for all the Sinai sites, and did not even use them for more extensive geographic regions, such as the Gouda Desert or the Highest Desert. It is possible that the source of the names 'Sideh' and 'Arselaus' is Semitic – 'Sideh' from the Arabic *sid* or *s'dud*, 'waterfall' or 'waterfalls'; 'Arselaus' may have been a distortion of the name *Har-Sela* and so on (similar to the distortion of the name *Har Megiddon* to Armageddon in the Christian tradition).

The Elim mentioned by Nilus was not the biblical Elim, but rather a monastery near Mt. Sinai. This name was apparently given to the monastery to commemorate the desert way station of the Children of Israel.

A sherd found at Deir Antush bore the Greek letter 'K' incised on it, while another bore 'KB'. It is possible that the ancient name of the monastery began with these letters, though it is more probable that the letters represent the measure of the liquid content in the vessel.

Just as the monks neglected to preserve ancient names when naming their monastic settlements, so the Bedouin, after the abandonment of these monastic settlements, did not preserve the names given by the monks. It appears that there are two exceptions: Wadi Sigilliya, which may preserve the name 'Sengis', and Wadi Imlaha, which may preserve the name 'Malucha'. Should this be the case, it is the result of these two valleys being the most remote and inaccessible in Sinai; aside from a handful of hunters, the Bedouin do not reach these sites during their nomadic cycle, and thus there had been no need to rename them.

Summary

A. The monastic settlements were not established at holy sites (aside from the Burning Bush and St. Elijah's Valley) for two main reasons: (a) The location of the monastery was determined by considerations of soil, water and scenery. (b) The holy places were located along the pilgrim routes, while the monks sought seclusion.
B. The mountainous monastic settlements were built chiefly on the red granite mountains because of the available soil and water.
C. The monastic settlements of Wadi Sigilliya were apparently part of the center around Mt. Sinai.
D. The scattered distribution and the limited number of monks in each monastery, together with the distance between the cells within the monastery itself, indicate that Sinaitic monasticism emphasized the direct communion of the monk with God, with the scenery performing the role of an informal mediator. The monastic society and establishment did not interfere with, nor nurture, this union; the establishment existed to secure conditions (albeit very difficult ones), which would facilitate this relationship.
E. The location of the monastic settlements, as well as their inner layout, supports the picture painted by the historical sources, that the economic base of the Sinaitic monasticism was food production, especially of fruits and vegetables.
F. The distribution, size and inner structure of the monastic settlements and their churches are unlike any other monastic center that developed in the East.
G. The sleeping cells were composed of one room and did not contain beds.
H. Most of the monks' names are unknown to us and are not mentioned in the sources. The 17 names (several doubtful) which are known have their origin in Syriac-Aramaic, in Greek and in Nabatene–Arabic.

The Economic Base of the Monastic Settlements

The need for work in general, and for physical labor in particular, was stressed in all monastic settlements throughout the Byzantine Empire (Jones 1964: 931). That the Sinai monastic settlements emphasized tilling the soil was a result of the great distance of Sinai from Egypt and Palestine, which made the importing of food a difficult and expensive undertaking.

As opposed to other monastic centers in the East, where bread was the major nutritional component (Duncan-Jones 1974: 369, 370), the fare of the Sinai monks was based on fruits and vegetables. The cultivation of fruits in monastic orchards in Sinai is well documented in the historical sources (Solzbacher 1989); these make no mention at all of the growing of wheat in South Sinai. Ammonius writes that the Saracens used to bring wheat from Egypt, which they exchanged for dates with the monks of Raitho (Lewis 1912: 17). Eutychius mentions that Justinian instructed his messengers to provide a supply of wheat from Egypt (*PG* 111: 1071). While undoubtedly grains were an important component of the monks' diet, it is reasonable to estimate an intake of *c.* 60 kg of wheat per monk a year. This figure may be inflated, as many monks would abstain from bread, other than the holy bread required for Mass. Ammonius relates that the monks of Mt. Sinai did not drink wine, nor did they use oil or eat bread (Lewis 1912: 3).

A certain amount of olive oil was imported from Palestine (Anastasius, *Narrative* 9), albeit olive oil was produced in South Sinai as well (see below). Aside from these products, there was no significant importation of food for the monks of Sinai, and they produced what they needed for their livelihood in their own orchards.

The Agricultural Potential

Mountain Agriculture

It would appear that a region of annual precipitation averaging 65–80 mm is not conducive to agriculture. However, as we have shown, the overwhelming majority

of monastic settlements and farms in the Sinai mountains were built in mountainous valleys and wadis composed of red granite. The slopes of the granite mountains are smooth, steep and impermeable; this results in the flow of water into the valleys, which contain coarse-grained arcosic soil. The water rapidly seeps into such soil and is collected in the ground, as well as in rock crevices; natural dams were formed from outcrops of harder rock in the granite, along with artificial dams Pervolotzky and Finkelstein 1985: 27–41; Pervolotzky 1980: 11 [Hebrew]).

Most of the water reaches the valleys and does not continue as ground water to the lowest sites. Thus a large amount of water is trapped in the lower arcosic soil; some of it flows as springs, but most of it simply settles at the bottom of the arcosic soil and in shallow rock crevices. Since the arcosic soil is no more than 5 m deep, it was relatively simple to dig wells and draw their water.

This water system – typical of regions of red granite, especially young granites of the Iqna Catherine, Ṣaḥara and Girgar type – permits runoff irrigation agriculture in small pockets of soil between the mountains.

The arcosic soil, which is the product of eroded granite, is considered poor-quality soil due to its coarse granulation and its high quartz and low clay content (the clay being necessary to maintain the water for plant roots). However, this soil is excellent for tree cultivation, as it contains large amounts of potassium, sodium, chlorine, magnesium, calcium and other minerals necessary for tree growth. These minerals are found in large quantities in the feldspar (orthoclase and plagioclase), as well as in the micaceous deposits in the granite (Flexer 1969: 154–156 [Hebrew]). The tree roots are able to quickly decompose these minerals and create a clayey soil. In the Sinai Heights, the arcosic soil has a high content of feldspar (Mazor 1980: 121 [Hebrew]), so that the non-silicate mineral content is high, and this results in its fertility and suitability for cultivation, especially of fruit trees. Thus, trees, whose roots are able to take apart the minerals and infuse them into their roots, are able to develop nicely without the aid of fertilizer.

The high fluctuation in temperature, from hot in the summer to below zero in the winter (Kesler 1977 [Hebrew]), is conducive to the cultivation of deciduous fruit trees, which need blasts of cold to ripen the fruit.

Modern Bedouin Orchards as a Model

The cultivation of orchards was initiated in Sinai by the monks. Both the comprehensive survey of these orchards, which was conducted by Pervolotsky (1980, 1980a: 411–419 [Hebrew]), and the surveys discussed in the present study, did not reveal any archaeological data which would indicate there had been orchards in Sinai prior to the fourth century CE. No pottery earlier than the Byzantine period was found in or near these orchards, nor were any Nabatean inscriptions.

Hundreds of orchards, some revived from ancient times, and some newly created, are being cultivated with fruit trees today, with practically the same methods of irrigation, types of trees and the same manner of cultivation as in the past. This serves as a unique model for understanding the nature, quantity and energy-producing capacity of monastic agriculture. While the majority of orchards presently tended by the Bedouin in the red granite mountains and in the Feiran Oasis were originally Byzantine, the orchards at Terfat El-Qadrin, Wadi Naṣib and other orchards around the high mountains were initially established only in the 1950s and 1960s (Meshel 1976: 98–100 [Hebrew]).

Studies conducted by Pervolotsky (Pervolotsky and Finkelstein 1985: 27–41) indicate that 90.5% of the Bedouin orchards in the Sinai Heights are located in wadis composed of red granite, which constitutes only 63% of the entire area where the orchards were studied. The orchard occupied a bank of the wadi, thus avoiding the potential flood damage, occurring in the flow path of the wadi bed. The orchard was surrounded by a thick fence, which was especially reinforced where it reached the wadi, in order to dam the floods. Each orchard had a well, usually less than 5 m deep; water was drawn with a water jug. The orchards were abandoned during the winter, when the tillers returned to water them once a week or two.

During the summer, Bedouin families live in the fruit-yielding orchards. Of the 400 Bedouin orchards recorded in the Sinai Heights during the course of the survey, 117 were measured during various stages of cultivation; it was found that the average area of an orchard was *c.* 1,220 sq m. The orchards contained a wide variety of fruit trees, totalling some 20 types. In most cases, the trees were grown from seeds, which sprang from the fruits falling on the ground. The Bedouin continue this mode of propagation, though they are aware of pruning techniques.

Most of the trees belong to the rose family, of Turkish and Persian plains origin; thus, they require a cold spell for their fruit to ripen. It is possible to keep most of these fruits for an extensive period of time without the use of cold storage. Less than 5% of the Bedouin orch-

ards are used to grow vegetables. Possibly, had the Bedouin occupied the orchard area throughout the year, the yield of vegetables would have been higher.

The estimated crop of an average orchard, based on several different types of trees, can be measured in caloric value to constitute over 50% of the annual consumption needs of the average Bedouin family. Each square meter in the Bedouin orchards produces an annual 1,834 calories. Assuming that an adult male consumes about 850,000 calories a year, the Bedouin adult male needed an orchard measuring 463 sq m to maintain his requirements.

Pervolotsky's studies were carried out during the Israeli occupation of Sinai, when many orchards were neglected, and others were not cultivated properly for two main reasons: (a) The Bedouin did not have a market for their surplus produce, since the Israeli fruit supply inundated the Sinai. (b) There was an abundance of outside work possibilities for the Bedouin generated by the Israeli authorities. This neglect resulted in low productivity of the orchards.

Pervolotsky relates that the crops prior to the Israeli occupation had been larger, and the surplus had been sold to the Suez Canal towns for a tidy profit, so that it paid for the Bedouin to invest in the upkeep of the orchards. A well-kept orchard could produce some 40–50% more crop than the average suggested in the present study, i.e. a total of *c.* 2,600 calories per sq m.

This data indicates that an adult male required a well-organized orchard of *c.* 330 sq m.

The Agricultural System

The Orchards and Their Crops

The Agricultural Plots. The agricultural plots, like the monastic settlements themselves, were located in mountainous valleys or along the wadi beds. The size of these plots ranged from 40 to 3,420 sq m (at the Church Site at Sigilliya), though there were several smaller plots averaging *c.* 10 sq m, built on small terraces on the slopes. The plots, with the exception of the very small ones, contain or are near a perennial water source.

Establishing an orchard was a long-term, tedious process, and required much manpower. After determining the site based on water and soil considerations, the fence had to be built, particularly that which protected the orchard from the flow path of the wadi; this part consisted of extremely large stones and was at least one meter wide. These fences incorporated stones about one meter long and half a meter wide and high. Such stones could weigh over a ton, so that moving them to the fence required the combined efforts of many monks. The lower wall of the orchard was often plastered on the inside, where it ran underground, in order to protect it from the orchard's ground water. After the external walls were built, inner terraces were established, and soil was imported from small earth pockets on the nearby slopes. Most of the imported soil, which was mixed with the arcosic, was formed from eroded igneous rock, which contained a higher clay content than the former. Frequently, tons of soil were imported into one orchard. The enormous effort invested in building the orchards is in direct disproportion to that used to build the chapels or dwellings. This phenomenon is reflected by many historical sources, which describe the establishment of the orchards and the fruit grown in them (Nilus *PG* 79: 613c; Egeria 3, 6; *Alphabeticon Silvanus* 4, 5, 8; Aramaic *Apophthegmata*, *CSCO* 353: 146, 147; Daniel of Raitho: *PG* 88: 600–604; Anastasius, *Narratives* 13, 15, 22, 24, 25).

Irrigation. The orchards were cultivated by means of irrigation agriculture – with well or spring water: each plot was watered every few days, depending on the season of the year. A pit was dug around each tree, and the plots were then inundated. In order to saturate the area, it was necessary to completely level the ground; thus the orchards often have four or five different levels, separated by stone terraces.

Well Irrigation: When a well was located within the orchard grounds, there was no need for pools or built conduits. The water was drawn from the well with water jars, transferred to wooden pails (*Limonarion* 16), and the tree pits were then manually watered. Irrigation was done during the day and was a lengthy, tedious process.

Digging the well was the prerequisite for planting the orchard, as the ground-water level could not be reached in every place. In many cases, the ground water near the orchard was led to it, or near it, via conduits and diversion channels, which caught the winter run-off water from the wadis and slopes. This increased the volume of available ground water. Another man-made intervention was damming the valleys in order to prevent soil erosion, chiefly to create artificial accumulation of the arcosic soil, which raised the water-table level. Thus, preparation of an orchard which had no nearby spring was a formidable task, which entailed as much labor under- as above-ground.

Spring Irrigation: Irrigation by means of a spring resulted in a totally different internal arrangement of the orchard. The upper level of the orchard contained the pool, which was fed by a conduit leading from the spring. Since the Sinai springs have a low yield (several dozen to several hundred liters a day), the plots were not directly watered from the spring, but rather by water collected in one or more pools during the night. Irrigation conduits were built leading from the pools to the plots, which were watered on different days.

In some cases, the spring flowed within the confines of the orchard as at Deir Abu Mghar, the Church Site at Sigilliya and ʿEin Najila. However, more often the spring was located in the wadi above the orchard, either close by, as at Sigilliya and Deir Antush; or farther away, as at Deir Rabba, which was fed by a conduit extending from Wadi Abu Haiman; Deir El-Arbaʿin, where one of its three conduits arrived from Wadi Jarjaniya at Jebel Catherine; and one of the orchards in Wadi Shreij, with a conduit several hundred meters long. The long irrigation conduits were shallow, affording a gradual flow of a limited amount of spring water over an extended period of time. There were no aqueducts in Sinai meant to collect flood water. The conduits were usually built on retaining walls on the slopes, or were attached with mud to the rocky cliff. All the conduits were plastered inside.

It is common in South Sinai to find that springs, which once supplied water to the orchards via conduits, are presently dry. In many cases the beginning of the conduits was preserved, as well as travertine deposits indicating the exact place where the conduit received its water. This clearly shows that the spring had been active when the conduit was built. The phenomenon of dry springs was noticed at El-Karm in Sigilliya: by two conduits in Wadi Sigilliya, one conduit leading from Wadi Abu Haiman to Er-Rabba; two conduits in Wadi Shreij; two of the three conduits at Deir El-Arbaʿin; two conduits at Deir Antush; one large conduit at Deir Ruḥman; one conduit at Shaqif Ed-Deir; and one conduit at El-Khirbe. Several sites contained actual springs which had watered the orchards in ancient times but are presently dry: the Church Site at Sigilliya; the upper complex at Deir Abu Mghar; and perhaps also at Wadi Fraʿiya. This might indicate a certain decline in water output, though alternate explanations are also plausible, such as a shift in the spring's location, increased modern pumping from wells, artificial tapping and diversion of the spring to conduits during the Byzantine period. This point will not be elaborated here, due to the above reasons, as well as historical evidence of droughts (Anastasius, *Narrative* 16), and the fact that the amount of water available today is sufficient to maintain thriving agriculture, as evidenced in the Bedouin orchards.

Pools: Collecting abundant quantities of water in reservoirs was not an accepted practice in the Sinai monastic settlements. As demonstrated above, spring water was collected by night in order to irrigate the orchards by day, so that the pool contained no more than 2 m^3 (refuting the definition of several plastered dams at Jebel Sufsafa as pools; see Finkelstein 1985: 50–55). In our opinion, most of the plastered walls served to block the narrow passages in the wadis, in order to preserve the water in the arcosic soil and to raise the ground-water level, so the water could be used in wells.

The Agricultural Crops. Archaeological excavations have yielded pits of peaches, apricots, grapes, almonds, prunes, plums, pomegranates, pears, dates and olives. No apple seeds were found, though it is probable that this fruit was grown as well.

These fruit pits, along with a plethora of historical sources mentioning the great variety of trees and vegetables grown by the monks, indicate that the orchards were not very different from the modern Bedouin orchards in the assortment of crops. To quote two of these sources: "Take what you will, we have everything here", says a garden owner from Mt. Horeb to a disciple, who requested fruit for his teacher (Aramaic *Apophthegmata*, *CSCO* 353: 151). "Once, when I was a shepherd in the winter, I found myself near a garden with fruits of all kinds", recounted Mundir the Saracen to Anastasius (*Narrative* 25). This tale is meant to show that a miracle was enacted, as the fruits which normally ripen in the summer did so in the winter in this garden. For our purposes, this is important evidence that most of the fruits grown by the monks were on deciduous fruit trees.

Dates were grown mainly at Raitho (Ammonius), and at monastic settlements located at a maximum elevation of 1,200 m asl. Olives were grown at Wadi Eṭ-Ṭlah, though apparently also at other sites. Remains of olive presses were found at St. Catherine's Monastery (the stone base of the wooden screw was found in secondary use in the defense wall protecting the Burning Bush), and near the outlet of Wadi Esh-Shagg into Wadi Eṭ-Ṭlah, where a similar stone base was found, as well as the basin and crushing stone of an olive press.

The variety of the vegetables cultivated is not known; the only explicit reference is to cabbage (Anastasius, *Narrative* 15).

Aside from the crops in the orchards, the monks consumed fruits and roots picked on the mountains. Most likely, the monks were familiar with wild plants, which were edible and of medicinal value. A direct reference is to Georgious of Arselaus who consumed wild capers (Anastasius, *Narrative* 10).

Wine Production. None of the historical sources makes any mention whatsoever of wine production in the monastic settlements or farms in South Sinai. Surveys and excavations have revealed five unequivocal and two plausible winepresses. At El-Karm, a winepress and its adjoining, underground wine cellar were excavated. A winepress was excavated at Deir Antush in front of the church structure, which was near a thick-walled winery. A third winepress was excavated in Wadi Ṭubuq. These three winepresses were composed of a treading surface, a sedimentation pit and a collecting vat. The winepresses found at ᶜEin Najila and Maᶜin El-Raᶜiyan are smaller, and do not have a sedimentation pit. They adjoin the outside walls of the church building. Two installations, which were possibly winepresses, were discovered at Deir Fujar and Deir Fukarra.

It is obvious that vines for the wine industry were cultivated at the monastic settlements which contained winepresses. For example, at Deir Antush, the total area of the orchards was 1,360 sq m. Even if the entire orchard had contained vines, the crop would have been sufficient to fill the collecting vat, which contained close to 2 m^3, only once. We propose that the vines at Deir Antush, El-Karm, ᶜEin Najila and other monastic settlements which had a wine industry, were not grown in the orchards, but rather on the nearby slopes. Strips of ground were created by terraces on the slopes. Dozens of terraces were found at El-Karm, each *c.* 1 m long; this was the case at the Church Site in Sigilliya, as well. At Deir Antush, there was a relatively level surface cleared of rocks and stones, which contained neither an orchard nor an irrigation system. Apparently vines were cultivated in these plots, supported by the large boulders found in the area. The vines did not require regular irrigation, though it is possible that during the dry summer months some manual watering did take place.

The volume of wine produced in the South Sinai monastic settlements was limited, and meant for personal consumption and perhaps limited marketing.

Manna Production. The production and distribution of manna in small ampulae to the pilgrims began sometime after Egeria's visit, as she fails to mention the custom of manna. The earliest source to mention this custom is the Piacenza Pilgrim (39; see Site No. 40, above).

As suggested above, the small, one-handled juglets found in Deir Abu Mghar Building C served to distribute the manna among the pilgrims. Possibly, Building B at Deir Abu Mghar, whose function is not clear, also served in the production and storage of manna.

Manna has not been identified – neither the substance nor the stages of its production.

Summary and Conclusions

The total area of the monastic settlements' orchards on the granite mountains (excluding Pharan and Raitho), is *c.* 161.5 dunams (not including small plots on the slopes, where vines may have been cultivated).

The number of monks inhabiting these mountains is estimated at *c.* 500, with an average agricultural plot cultivated by each monk being 323 sq m. An area this size would have yielded fruits and vegetables with a caloric value of *c.* 840,000 calories (based on an average of *c.* 2,600 calories per meter annually). The categorical conclusion is then that the Sinai monks were capable of producing their own food.

Other Professions

Agricultural work was undoubtedly the main economic base of the hermit monastic settlements in the Sinai. However, at the major monastic settlements, particularly Mt. Sinai, Mt. Horeb, the Burning Bush and Raitho, many monks practiced additional crafts, mainly related to the church liturgy and services.

During the seasons when agricultural activity waned, many monks were occupied with construction of monastic settlements, and paving roads between the monastic settlements. Some monks wove baskets: Father Nistros would weave six baskets a week for three weeks every year, during the time that he spent at Raitho (*Alphabeticon Nisteros* 6: *PG* 65: 305–308). Megethios made his living solely from basket weaving, and would make three baskets a day (*Alphabeticon Megethios* 1, 2: *PG* 65: 299–302). Nevertheless, basket weaving was not as common a practice in Sinai as it was in other monastic centers, such as Egypt (*Alphabeticon Amonus* 6, *Achilles* 5, and more). The reasons for this may be the result of the need to produce food, the relative seclusion of the Sinai sites and the fact that the Saracen women wove palm-frond baskets – the Sinai monks did not seek to compete with them.

Construction

Public buildings were concentrated at holy sites, such as Mt. Sinai, the Burning Bush, Raitho and Pharan. The style and building materials employed in the hermit monastic settlements in the mountains indicate that the monks themselves were the builders of their settlements. All building materials were local and prepared or adjusted at the sites, with the exception of glass windowpanes of uncertain origin, found in the church windows (perhaps the origin of the windows is from North Sinai?). The wooden beams which were studied were made of common almond tree (Shaqif Ed-Deir), tamarisk (Fraᶜiya and Shaqif Ed-Deir), palm tree (Fraᶜiya), acacia (Deir Antush and Shaqif Ed-Deir), pine (Deir Antush and apparently the church at the Sinai Monastery), *ziziphus* (christ-thorn; Deir Antush; Liphschitz 1993 [Hebrew]) and probably the willow tree, which most likely was also used during the Byzantine period in Sinai, though it has not been found in excavations so far. All these trees, serving for construction, were grown in the monastic settlements' orchards. Unlike the public building in the church of the Sinai Monastery, the wooden beams were laid as felled, with their bark.

Mortar is not evident in the buildings. The walls were lime-plastered inside and outside. The window frames were also made of similar lime, produced near the monastic settlements.

Construction was not exact or of high quality, and little care was evidently taken to create right angles or straight walls. In many cases, boulders were incorporated in the building. Sun-dried mudbricks were used to build walls, while kiln-baked bricks were used for arches.

Road Paving

The system of major roads was apparently not under the auspices or care of the monks. The secondary routes, which joined the hermit monks to the main paths, had perhaps been paved by the monks. A considerable difference is apparent between the main roads – running along convenient topographical routes requiring minimal levelling and marking and little construction or paving, and the secondary roads – leading to the monastic settlements. These roads passed through difficult, almost impassable terrain, and required the construction of retaining walls and bridges and the paving of large areas. The road crossing Mt. Serbal and descending to Sigilliya, the road from Wadi Muwajed to Wadi Fraᶜiya, and the road ascending from Wadi Muwajed to Shaqif Ed-Deir are good examples of extensive, high-quality roads built by the Sinai monastic movement, constituting one of their most impressive building achievements.

Lime Kilns

Ten lime kilns related to monastic settlements were found in South Sinai: large, permanent ones; and smaller, temporary examples, used for the construction of one building. Lime kilns were found at the following sites: El-Karm(?); Wadi Imlaha (near Deir Umm Botme); Fraᶜiya; Wadi Muwajed (between Farsh Ḥabash and El-Maᶜin); Wadi Ṭubuq; near Deir Raheb (two kilns); Wadi Abu Haiman; Wadi Shagg; Wadi Rummana (near Deir Rummana at Freᶜa); and Wadi Nuqra (see foldout map).

Lime production is very difficult and problematic in the environment of the granite mountains of Sinai. The lime content in granite is very low, and the kilns could not burn granite with a high silica content. The possibilities were to bring limestone from the Guna mountain range, to the north of the granite mountains of South Sinai, or to use travertine from the wadis, which formed at springs, on the floors of waterfalls, or which had sunk and solidified in the conduits built by the monks. Actually, all the lime kilns we found were located very near an ample travertine source. Travertine, like limestone, is composed of calcium carbonate, whose burning releases carbon dioxide, causing the monoxide calcium (lime) to settle to the bottom of the kiln (Avitsur 1976: 128–130 [Hebrew]).

The proximity of the lime kilns to the monastic settlements indicates that the monks themselves produced the lime which they required for building their monastic settlements. This was the case in the Judean Desert, while at Masada, a lime kiln was found east of the church. *The Life of George* 26: 125 relates that the monks hauled lime from the kiln to the monastery (Hirschfeld 1987: 129 [Hebrew]).

The Monks and the Pilgrims

During the fourth century CE, the embryonic stage of both Sinai monasticism and pilgrimages, the monks and pilgrims enthusiastically shared common goals. Thus, it is difficult to define Juliana Saba (Theodoret *PG* 82: 1315) and Simeon the Elder (Vööbus 1960: 42–51) as pilgrims. Egeria visited Sinai as a pilgrim, but maintained very strong ties with the monks, who showed

warm interest in the pilgrims. At a later stage the monks viewed the growing movement of pilgrims as a hindrance to their seclusion.

In the *Apophthegmata Patrum* there is almost no mention of pilgrimages. The *Apophthegmata* indicates that there was no connection between the monastic way of life and the pilgrim movement. The sole reference in the Syrian *Apophthegmata* is to monks who guided pilgrims from Jerusalem to Sinai (Wallis Budge 1904: 937). Nonetheless, for the most part Saracens rather than the monks did this. John Moschus writes extensively of pilgrimages by monks to Sinai; it appears that while the lay pilgrims visited a set route, which included only the holy sites, the monk pilgrims showed interest in the life of the Sinaitic monks and visited the hermit monastic settlements. However, the Piacenza Pilgrim met monks at Mt. Horeb and the Sinai Monastery, but did not develop an amiable relationship with them as Egeria had.

The increasing wave of pilgrims during the sixth and seventh centuries CE, especially groups from Armenia and Georgia, consisted of several hundred pilgrims each. This required major organization on the part of the monastic establishment, in order to provide accommodation and meals at the Sinai Monastery, and to allow for common prayer on Mt. Sinai. Daniel of Raitho (*PG* 88: 608) and Anastasius (*Narratives* 7 and 38) underscore the phenomenon of Armenian pilgrims; their number in each of these groups was so great that it was impossible to pray inside the church on Mt. Sinai. Apparently this was the reason that a rock outside the church became sanctified and served as the prayer site for large groups. Stone (1982a: 27–31) maintains that the Persians, after the conquest of Palestine, encouraged the Armenians to come as pilgrims to the country and to Sinai. This pilgrim movement continued after the Arab conquest, as attested by numerous rock carvings (Negev 1977: 76–80; 1981: 66–71; Mayerson 1982: 44–57). Neṣṣana Papyri 72 and 73 (Kraemer 1958: 205–208) well describe the pilgrimages to Mt. Sinai during the second half of the seventh century CE. It appears that the Armenians and Georgians had their own monastic communities in Sinai. It may be assumed that some of the monks who lived near the major pilgrim routes took part in this activity, with an Armenian monk probably serving the needs of the Armenian pilgrims (Anastasius, *Narrative* 37). However, even during the peak of pilgrimage to Sinai, most of the monks preferred their mountainous seclusion to the encounter with the pilgrims.

Thus, it appears that the pilgrims barely influenced the lifestyle or habitats of the monks. The pilgrims did not interfere with the monks' anchorite yearnings, nor did they play any significant role in the monastic economy.

One of the most interesting archaeological phenomena in Sinai is that, aside from inscriptions and rock carvings, there are no remains directly related to the pilgrims – neither hostels along the roads or near Mt. Sinai, nor road signs or milestones. Moreover, practically no graves were found along the pilgrim routes. The churches at the Burning Bush and Mt. Sinai were basilical, and not 'central' churches, no doubt more suitable as commemorative edifices to be visited by many pilgrims. While the information gleaned from the sources well reflects the remains found at monastic sites, the archaeological data do not support the historical sources relating to the pilgrims. It seems reasonable to suppose that near the Burning Bush remains of pilgrim camps would be found, similar to those surrounding the column of St. Simeon the Stylite. One possible explanation of this void is that, due to Saracen hostility and poor security conditions, most of the pilgrims concentrated within the walls of the monastery. This however, does not entirely explain the incongruity between the historical sources and the archaeological data.

Development of the Monastic Movement in Sinai during the Byzantine Period

Archaeological Remains

A major point which should be stressed is that in all the monastic settlements surveyed and excavated by this author and in other archaeological research, not one coin was found. This indicates that the monks did not use money in their daily lives and practiced a largely autarchic economy. As numismatic dating of the monastic settlements is ruled out, chronology must be established on the base of pottery assemblages, Carbon-14 dates and other finds from the excavations (see below).

Dating the Ceramic Assemblages

The ceramic assemblages at the Sinai monastic settlements may be dated from the third to the eighth century CE. Very few vessels belong to the earlier stages of the third and fourth centuries, with a few dated to the fifth century as well. The main bulk dates to the sixth and seventh centuries CE, with many types continuing into

the eighth century CE. No vessels which could confidently be dated to the ninth–eleventh centuries CE were found.

Many of the vessels were made locally in Sinai and lack parallels outside the peninsula, thus making dating difficult. Furthermore, the pottery in each of the sites, especially that which was excavated, represents mainly its last phase. The earlier the period, the less pottery that was found. Thus, the dearth of fourth- and fifth-century pottery does not necessarily indicate the weakness of the monastic movement at that time.

Carbon-14 Dating (Table 7)

Samples RT-1795 and RT-1796 indicate that the monastery at ᶜEin Najila was built toward the end of the fourth or beginning of the fifth century CE. Sample RT-1803 shows that the monastery at Wadi Fraᶜiya was also established at around the same time. These two monastic settlements are among the most remote in Sinai, and are distant from the center at Mt. Sinai. This demonstrates that the spread of the monastic movement in Sinai was rapid, and had already reached its peak in the fifth century CE.

The young (one-year-old) branches of European olive wood which were found burnt in the churches at Sigilliya and Wadi Fraᶜiya may indicate that such branches were used for incense burning in the church. Their attribution to the sixth, seventh and perhaps beginning of the eighth centuries CE at Wadi Fraᶜiya dates the existence of the monastery. The sample at Sigilliya shows that the monastery served apparently uninterruptedly until the tenth century CE.

The fate of most of the monastic settlements was not as fortunate as the monastery at Sigilliya. ᶜEin Najila seems to have been abandoned toward the end of the

Table 7. Carbon-14 Samples

Site	Sample No.	Calendaric Age (CE)	Probability (%)	Remarks
Sigilliya	RT-1791	878–985	100	European olive. Between Phase A and Phase B.
Deir Antush	RT-1792	1514–1602 1615–1655	68 32	Cypress (*Cupressus semperevirens*).
Deir Antush	RT-1794	897–980	100	*Acacia raddiana*. Fire after abandonment.
ᶜEin Najila	RT-1795	268–274 337–439	4 96	Peach pits from the church building.
ᶜEin Najila	RT-1796	391–462 478–527	67 33	Almond tree beam that dates the building.
ᶜEin Najila	RT-1797	613–689	100	Almond tree beam from roof repair.
ᶜEin Najila	RT-1798	636–705	99.3	Grape seeds from cleaning the winepress. Dating the last years of the site.
Fraᶜiya	RT-1800	550–645	100	European olive, one-year-old branch from inside the basin.
Fraᶜiya	RT-1802	638–718 741–759	86 14	European olive, one-year-old branch.Found burnt on chapel floor, dating the last years.
Fraᶜiya	RT-1803	348–457 483–509	86 14	Tamarisk roof beams dating the phase of construction.
Shaqif Ed-Deir	RT-1804	897–936 940–1026	25 75	*Accacia raddiana*. Fire on the floor before the roof collapsed.
Shaqif Ed-Deir	RT-1805	659–729 731–770	66 34	Tamarisk. Fire on the floor before the roof collapsed.

seventh or beginning of the eighth century CE. Deir Antush was built only at the end of the fifth or during the sixth century CE, and was already deserted by the seventh century CE. Wadi Fraʿiya, too, seems to have been abandoned at the beginning of the eighth century CE. Shaqif Ed-Deir was deserted, and the Bedouin made campfires in the church by the end of the seventh or beginning of the eighth century CE (Sample RT-1805).

We may summarize here that Carbon-14 analyses corroborate the archaeological and historical data: Sinaitic monasticism had its beginnings in the fourth century, spreading rapidly during the fifth and reaching its peak in the sixth and seventh centuries. It declined at the beginning of the eighth century CE, about two generations after the destruction of the Christian city of Pharan.

Historical Sources

Julian Saba built the first church on the summit of Mt. Sinai in *c.* 363 CE (Theodoret: *PG* 82: 1315). As early as that time, Jebel Musa was identified with Mt. Sinai, and it seems that monks already chose to live at Jebel Sufsafa and in the valley close to the Burning Bush. The visits of Julian Saba, Simeon the Elder several years later (Vööbus 1960: 42–51), and the pilgrimage of Egeria in the early 80s of the fourth century CE indicate that during the last quarter of the fourth century CE, monasticism in Sinai and pilgrimages there were common. The pilgrimages, which began from Syria during the third quarter of the fourth century CE, spread rapidly, and by the last quarter of the century, pilgrims came to Sinai in droves not only from the East and Egypt, but from the Latin West as well.

Egeria describes all the holy sites near Mt. Sinai and the Burning Bush. Their sanctity was unquestionable, though it appears that these were mainly local, folk traditions. This would explain why Jerome, writing several years after Egeria, totally ignores the location of Mt. Sinai and its sanctity. In the Latin translation of the *Onomasticon*, Jerome continues to uphold Eusebius' opinion, based on Josephus Flavius (*Antiquities* II 256–265), which identifies Mt. Sinai to the east of the ʿArava Valley.

The monks came to the mountains of South Sinai to seek seclusion, due to the region's remoteness, scenery, abundant water and agricultural potential; moreover, 'the Covenant' was presented in Sinai. Thus, we concur with the two reasons presented by Tsafrir (1993: 315–333) for the development of the monastic center in Sinai. However, we are skeptical of the hypothesis that the sanctity of sites in Sinai was preserved in the traditions of the Jews of Egypt, and in this way reached the monks.

The *Apophthegmata* supports the data offered by Egeria; toward the end of the fourth century CE, Sinai monasticism was well established, with guides and a fixed direction. The major monastic centers were populated by monks who came from all corners of the empire: around Mt. Sinai, at Pharan and Sigilliya, around Jebel Umm Shomer, and of course, at Raitho (Sheikh Raʿiya) and Bir Abu Suweira.

During the fifth century CE, close ties were maintained between the monastic settlements of Mt. Sinai and Raitho and the Syrian monastic movement, encouraging pilgrimages to St. Simeon the Stylite (*Limonarium* 117, 118).

The visit of the Piacenza Pilgrim indicates that during the reign of Justinian there was a decrease in the number of holy sites, and there no longer was total sanctity; Mt. Sinai and the Burning Bush were stressed. His writings suggest that there was little contact between the hermit monks in the mountains and the pilgrims. During his journey, when the fortified monastery at Sinai was being built, the center of Sinai monasticism was at the site of the Burning Bush, where there were a library, a hostel and other institutions.

In the days of the Justinian building projects in the Sinai – the two large, fortified monastic settlements at the Burning Bush and at Raitho, and a basilical church dedicated to Mary Mother of God on the summit of Mt. Sinai – the emperor severed the dependence of the monks on the city of Pharan and its bishop (*PG* 86: 1149–1152). This separation was carried out by granting equal standing to the bishop as to the hegumen of Mt. Sinai; it indicates a rise in the monks' influence, alongside the weakening of the Saracen town of Pharan. Apparently the military garrison stationed in the town did not contribute to its power, but rather the opposite. The presence of these soldiers weakened the self-esteem of the Bedouin tribes, who had served as protectors of the desert during the reign of Obedianus (Ammonius). They were now supplanted by the regular army (cf. the Piacenza Pilgrim). It appears that this slight to the status of the Saracens of Pharan resulted in their immediate conversion to Islam (see Appendix to Anastasius), and the conversion of the church on the summit of Jebel Ṭaḥuna to a mosque as early as the seventh century CE: the sole example of such a conversion in South Sinai. Mosques were erected alongside the churches in

the Sinai Monastery and in Deir Antush following the Arab conquest of Mt. Sinai.

The apex of Sinai monasticism took place in the first half of the seventh century CE, when John Climacus wrote *The Ladder of Divine Ascent*. During its peak, Pharan did not fulfill the role of the central town in Sinai and most of the pilgrims avoided it; the main road from Egypt to Sinai passed through Raitho, Wadi Isla and Wadi Muwajed (Epiphanius the Monk: *PG* 120: 259–272). The monastic settlements around Jebel Umm Shomer flourished. Aila also enjoyed a good relationship with the Sinai monks, a connection which became even stronger after the Arab conquest (Anastasius, *Narrative* 12).

The Persian conquest did not affect Sinaitic monasticism. Though access for pilgrims became difficult for a few years, this conquest ultimately opened the way for very large groups of pilgrims from Armenia (Stone 1982: 30). The Arab conquest did not affect the monks' property or the pilgrims' movement, which reached its peak a few generations after the conquest.

The decline of the monastic movement in Sinai, abandonment of the monastic settlements and the concentration of monks in a fortified monastery are not documented in historical sources. However, this phenomenon did find extensive expression in the St. Catherine monastery's library, where a wealth of literature in numerous languages was found, dating to the eighth and ninth centuries CE.

In the *Synaxarium*, the day of St. Paul the New of Mt. Latros (= Latmos) was celebrated on December 15. St. Paul the New was the archimendrite of the mountain monastic settlements in the days of the Macedonian renaissance. From the description of his life with his disciple Demetrius, we learn that the first monks who established the monastic center at Mt. Latmos were 300 refugees from Mt. Sinai and Raitho, who fled the Saracen slaughter in Sinai, seeking shelter in this mountain. They established small monastic settlements, emulating the Sinaitic model. While exact historical evidence for this phenomenon is not available, it is significant that Mt. Latmos is the only granite massif in Asia Minor, or in all the other monastic centers as well, which was morphologically similar to the granite mountains in Sinai, having summits and many valleys hidden between them. It was only natural that refugees from Sinai, pining for the scenery of their past, would establish their new home precisely at such a spot ('The Lives of the Monastery Builders', St. Paul the New of Mt. Latros, *Holy Apostles Convent* I).

Mt. Latmos, located on the border between Caria and Ionia in southwestern Asia Minor, is east of Bafa Lake. On the edge of the lake are the ruins of the Hellenistic–Roman city Heraclia of Mt. Latmos. Greek mythology contends that in a cave on this mountain lived Endimyon, when Selena, goddess of the moon, fell in love with him. During the Early and Late Byzantine periods, many monastic settlements, both *coenobia* and small hermit monastic settlements, were built near Lake Bafa and on the mountain itself (Akurgal 1985: 240, 241).

Conclusions

A. The beginning of Sinai monasticism was in the fourth century CE. Many monastic settlements were then built, including those at sites remote from Mt. Sinai and Raitho.

B. We know of 72 sites in Sinai that were inhabited by monks, 50 of them defined as monastic settlements.

C. Three types of monastic settlements were identified in Sinai: small, inhabited by up to five monks; medium, with up to ten monks; and large, housing fifteen monks and more.

D. Most of the monastic settlements in Sinai were established in valleys and wadis that were high up in the red granite mountains.

E. The Sinai monastic settlements were communes of hermits. They included a communal house of prayer, hermit-cells and an agricultural system.

F. The economy of the Sinai monks was based on cultivating fruit and vegetables in orchards, and not on the pilgrimage movement or basket weaving.

G. A monk in Sinai cultivated a plot of land averaging 323 sq m. This area was sufficient for the annual sustenance of one monk.

H. Toward the end of the sixth century CE, at the peak of monasticism, South Sinai was inhabited by no more than 600 monks.

I. Justinian built massive fortresses for the monks in the Sinai Monastery, and presumably also at Raitho (located at Sheikh Raʿiya, about 10 km south of Eṭ-Ṭur). We assume that he built a church dedicated to the Theotokos on the summit of Mt. Sinai.

J. A complete correlation exists between the archaeological finds and the historical sources concerning the subjects dealt with in this study.

K. Monks arrived in Sinai from all over the Byzantine Empire.

L. Pilgrims arrived in Sinai from all over the Byzantine Empire, including groups of hundreds of pilgrims, from

the end of the sixth century CE and mainly during the seventh century. Most of the pilgrims came from Armenia.

M. Sinai monasticism was not directly influenced by the Persian and Arab conquests, despite the fact that the Saracen tribes converted to Islam. The monks were not affected, and except for some damage at Mt. Sinai, neither the monks nor the monastic settlements were harmed, and security was maintained along the pilgrim routes.

N. The monastic settlements declined very slowly. Pharan was destroyed soon after the Arab conquest, but a few monastic settlements survived continuously until the tenth century CE (e.g. Sigilliya, Deir Antush).

O. The monastic movement in Sinai died out slowly not because of internal security and economic problems, but due to the Arab conquests in the monks' countries of origin, and the general weakening of monasticism during the eighth and ninth centuries CE.

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Appendix 1

Byzantine Pottery from South Sinai

Rivka Calderon

Introduction

The pottery in this corpus originates from excavations and surveys at various sites in the Sinai Heights and its periphery, as well as along the Gulf of Suez, as presented by U. Dahari in this volume. The discussion of the pottery includes: (a) a general typological report on the pottery; and (b) a discussion of the pottery arranged according to sites – excavated or surveyed.

The typological report describes the types of vessels submitted for study, their parallels and their chronology, as well as the distribution of each type at the various sites. The presentation of assemblages for each site refers to the relevant finds in the typological report, and includes a summary of the typical characteristics of each site. The pottery plates illustrating the ceramic assemblage of each site appear at the end of this appendix.

Typology

Storage Jars

Relatively few storage jars were found at the Sinai sites.

Local Storage Jars

Type 1A (Fig. 1: 1). No clear parallels were found for this type outside of Sinai, and it may represent a local product. The jar is of yellowish or brown ware and has a tall ribbed neck; the lower rim exterior is rounded or slightly triangular.

Type 1B (Fig. 1: 2). Similar to Type 1A in its tall ribbed neck, but has a thicker rim and is of brown clay.

Imported Storage Jars

Type 2 (Fig. 1: 3). Jar with a triangular rim stepped on the outside, and two ridges at the bottom of the short neck. The mouth is wide and two handles extend from below the rim. Three lines of ribbing on the shoulder.

A similar jar was found at Kellia in Lower Egypt, dated to the first half of the fifth century CE (Egloff 1977: Pl. 56: 1, Type 161). Egloff claims that it was used for dry goods as it was too porous for liquids (recalling cooking-pot ware). The jar in Fig. 1: 3 was probably imported to Sinai from Egypt.

Type 3 (Fig. 1: 4). This type, known as Gaza Ware, is common at numerous sites throughout Israel, especially in the south, the western Negev and along the coast, and was widely used in the maritime trade (Zemer 1977: Pl. 61). Peacock and Williams (1986: 198–199) maintain that these jars were common mainly in the southeast Mediterranean, but were also found in North Africa, Western Europe and in the Black Sea region. Adan-Bayewitz (1986: 97–99) suggests that the jars from Stratum 4 at Caesarea were produced in the Gaza region and used in the international trade of the famed Gaza wine. It is rare in the Sinai corpus, and is the single example in this report.

A large number of pottery workshops which produced Gaza Ware have been recently discovered in the vicinity of Gaza and Ashqelon (Israel 1993: 91–93), providing incontestable proof that this region was the manufacturing center of the ware.

These storage jars were initially manufactured in the fifth century CE (e.g. the Caesarea Hippodrome: Riley 1975: 32, Nos. 13–15; 29, No. 12, Type 2; there dated to the fifth–sixth centuries CE). However, the main period of use was during the sixth–seventh centuries CE (e.g. Reḥovot-in-the-Negev: Rosenthal-Heginbottom 1988: Pl. II: 96–97, Form 3).

The storage jar presented here (Fig. 1: 4) has chunks of fired clay adhering to its rim and shoulder, a characteristic of most Gaza storage jars. Several explanations are offered for this feature, the most acceptable being

that of Landgraf (1980: 82). Since the applied clay is of the same ware as the jar itself, it can be assumed that this was the clay used to hold the vessel while it was formed in two stages: the upper part was thrown on a wheel; after drying, this part was placed with its rim on the wheel, and was held in place with a piece of damp clay while the lower part was added. The traces of the clay 'handle' were fired in the kiln with the vessel and remained part of the final product.

Type 4 (Fig. 1: 5). Storage jar especially common in the Jerusalem region (Magness 1993: 224, Form 4A). The inner rim is folded and a ridge defines the join of neck and shoulder. Magness proposes a date in the third–fourth centuries CE.

This storage jar is rare in the Sinai corpus and Fig. 1: 5 represents its sole example. It probably originated in the Jerusalem area.

Type 5 (Fig. 1: 6–9). Typical bag-shaped storage jar which has numerous variants throughout the country, several of which are represented here.

Type 5A (Fig. 1: 6–8): Jar with a rounded rim top and a slightly swollen, medium-length neck, with a ridge at the bottom. A similar type was found at Reḥovot-in-the-Negev (Rosenthal-Heginbottom 1988: Pl. 83: 59, Form 1c), where the pottery assemblage was dated to the sixth–seventh centuries CE.

Similar jars were found by Magness (1992: Fig. 58: 16–21) in the excavations of the Octagonal Building at Caesarea, where they were the commonest jar type. Magness terms this type "southern Palestinian 'bag-shaped' storage jars". The erection of the Octagonal Building is dated by pottery to the fifth century CE and no later than the mid-sixth century CE.

Type 5B (Fig. 1: 9): Jar with a rounded, slightly tapering rim top and a short neck thickened in the center, with a ridge at the bottom. The shoulder is closely ribbed.

Similar jars were found at Reḥovot-in-the-Negev (Rosenthal-Heginbottom 1988: Pl. II: 55, Form 1B) in a sixth–seventh century CE context. They were divided into four subtypes without any chronological significance, as they were found together; the differences stem from regional variations and different production centers.

A similar jar uncovered at Kellia in Egypt was produced at Al-Mina, some 50 km from Kellia (Egloff 1977: Pl. 60: 4, Type 186), where a kiln dating to the second half of the seventh century CE was discovered. Near the kiln was a large amount of pottery slag of this type of jar. This is the predominant storage-jar type throughout Palestine, while in Egypt it is rare. Though our jar was apparently produced at Al-Mina, this can be considered a Palestinian type.

Storage Jars, Varia

Fig. 1: 10: Tapering rim top, thickened exterior; narrow ridge at the bottom of the medium-length neck.

Fig. 1: 11: Thick ledge rim and short neck with prominent ridge at the bottom. Reddish ware, yellowish slip.

Fig. 1: 12: Thick square rim and crude handle extending from rim to shoulder; the jar probably had an additional handle. The yellowish ware is typical of the Sinai Heights. This seems to be a local product of inferior quality.

Fig. 1: 13: Flat jar base of coarse ware, probably a local product.

Fig. 1: 14: Round rim top and long neck; probably a local product.

Fig. 1: 15: Ribbed body sherd bearing a cross incised after firing. Next to the cross is the beginning of another cross or some other design. The incisions were imprecisely executed while the whole jar was still in use.

Small Jar

Fig. 1: 16: Triangular rim exterior and oval body; three incised bands on shoulder. From the preserved sherds it is not clear whether the jar had one or two handles. The ware and the lack of parallels suggest that this was a local product.

Storage-Jar Lids

Fig. 1: 17: Well-levigated clay, delicate rim with groove to fit the jar rim.

Fig. 1: 18: Shaped like an inverted shallow bowl with a knob in the center serving as a handle; incomplete perforation of knob.

Similar lids found in the vicinity of Jerusalem are discussed by Magness (1993: 248, Form 2), who does not suggest which vessels they covered; her proposed date ranges from the sixth to the mid-eighth century CE. Such lids were also found at Kellia, designated by Egloff as a 'closed cooking pot lid' (1977: Pl. 55: 10, 11, Type 352), based on the soot found at their edges.

Fig. 1: 19: Well-levigated clay, ledge rim and the beginning of a basket handle at the edge; flat base. A similar lid, without the basket handle, was found in the vicinity

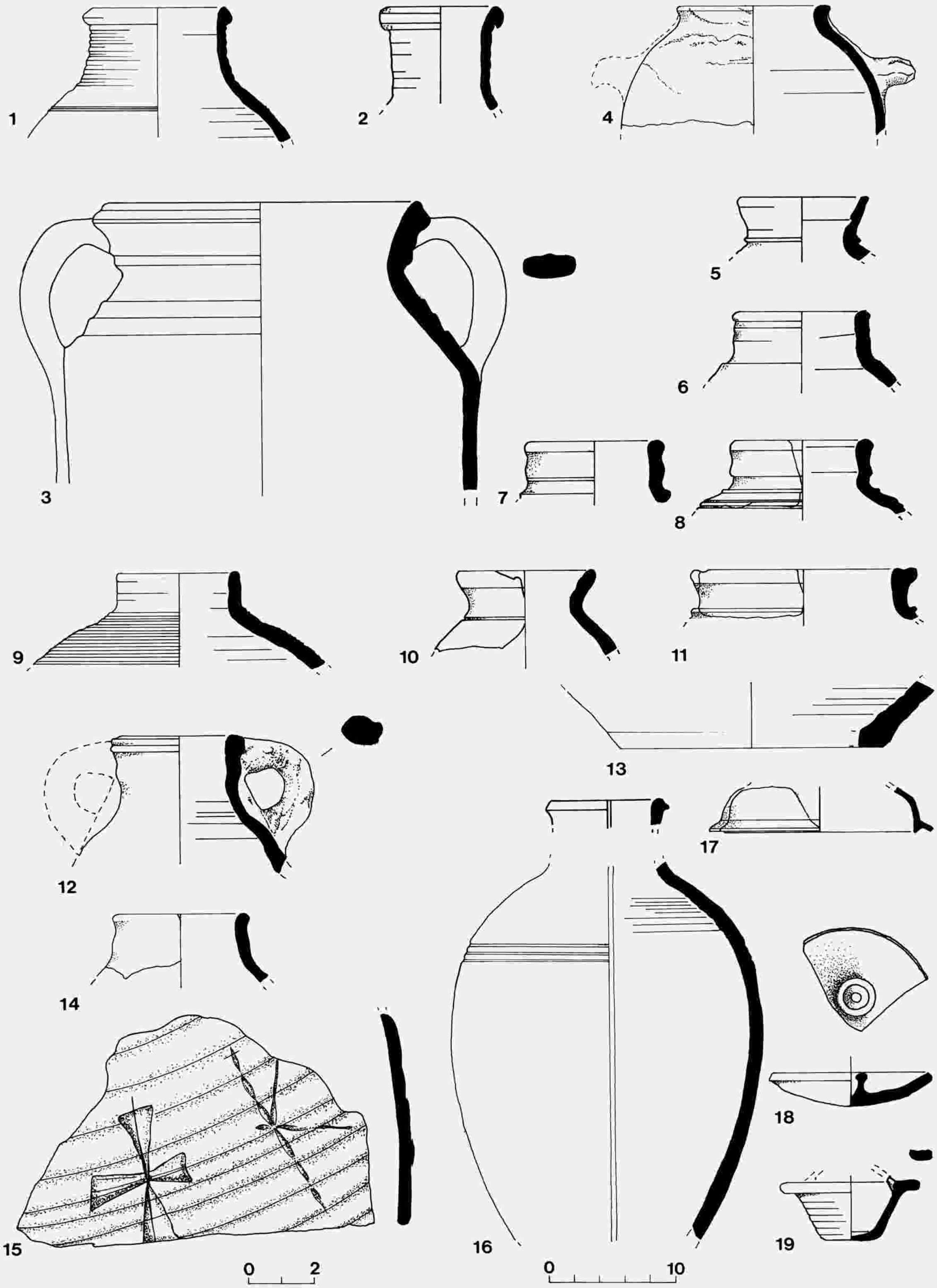


Fig. 1. Ceramic typology.

of Jerusalem (Magness 1993: 247, Form 1), dated to the sixth to the mid-eighth century CE.

Amphorae

There are few amphorae in this ceramic assemblage. Those amphorae which have parallels were probably imported into Sinai because of their contents, while those to which parallels could not be found may have been locally made somewhere in Sinai or were imported, though their origin remains unknown.

Type 1 (Fig. 2: 20–22). This is the commonest type of amphora in the corpus. It has a high neck and a thickened, round, collared rim, below which extend the handles. The mouth is wide and the amphora is massive. The vessel is carelessly executed. According to Peacock and Williams (1986: 185, Fig. 104A), this is the common amphora type of the Mediterranean basin, including Cyprus and Antioch (based on petrographic tests) and not of Egyptian origin, as has been generally accepted (see Egloff for Kellia, who assumes that amphorae of this type were made in Egypt, perhaps even at Abu Mina [Egloff 1977: Pl. 57: 4, Type 164]). The production date ranges from the early fifth to the mid-seventh century CE.

A similar amphora was found in the Hippodrome at Caesarea, where this type was extremely rare (Riley 1975: 32:20). Riley maintains that these amphorae were made in Egypt and are typical of the wine amphorae of Middle Egypt from the sixth to the early seventh century CE.

Type 2 (Fig. 2: 23–24). Amphora with triangular rim, long-ribbed neck and handles extending from the mid-neck. The crudely made vessel is medium sized. No parallels were found.

Type 3 (Fig. 2: 25–27). Amphora with an almost vertical round-topped rim; the handles extend from the neck just below the rim. A similar, though not identical, amphora was found at Reḥovot-in-the-Negev. Rosenthal-Heginbottom (1988: Pl. II: 125, 126, Form 4) suggests that this was an Egyptian jar produced from the early sixth to the late seventh century CE (without differentiating between our Types 2 and 3, considering both to be the same).

Type 4 (Fig. 2: 28). Complete amphora with only the base missing. Rim with round top and everted exterior; the shoulders are round. The long neck has handles at the bottom, where a hole 0.5 cm in diameter was drilled, apparently after firing; 9 cm below this, an additional hole 1 cm in diameter was drilled prior to firing. Holes of similar size and location appear on numerous storage jars and amphorae probably related to the production and storage of wine. Adan-Bayewitz discusses this phenomenon at Caesarea (1986: 97), where many different types of storage jars were found with one or more drilled holes, often on the shoulder. He suggests three possible functions for these holes (Adan-Bayewitz 1986: 92–95): (1) to provide an outlet for the carbon dioxide emitted during the continuing fermentation of new wine; (2) to allow pouring without having to open the stopped and sealed vessel; (3) to provide an inlet for oxygen during the process of maturation of the wine (which, according to Roman and Byzantine sources, improved certain wines).

It is difficult to determine whether this amphora was local or imported, or its exact date. However, the holes drilled in its body indicate that it was used for the production or storage of wine; the hole drilled prior to firing could serve some function during production, such as fermentation or oxidization, while the upper hole, added after firing, may have been intended to facilitate pouring.

Type 5 (Fig. 2: 29–30). These amphorae were almost entirely restored (base missing). They have a short neck and a narrow mouth, a prominent, triangular outer rim, sloping shoulders, and close ribbing from the shoulder down. The handles are carelessly applied. The soft light brown ware is covered by a thin yellowish slip. A Greek six-letter inscription in the center of the shoulder of No. 29, between the two handles, was incised after the vessel was fired, apparently while it was still in use. The carelessly incised inscription apparently mentions the name of the site in the Byzantine period (see Dahari, this volume).

The closest parallel for this amphora type comes from Kellia (Egloff 1977: Pl. 58: 2, Type 169), where the neck is also short and narrow and the outer rim protrudes. The vessel also bears an inscription on the shoulder, though it was painted in ochre rather than incised. In Egloff's opinion, the vessel dates from the late fourth to the early sixth century CE. He maintains that these amphorae were used for the transport of wine and oil from Egypt to various countries. The Type 5 amphora may have been a local product, manufactured in Sinai to serve for wine or oil storage, perhaps copying Egloff's Egyptian Type 169.

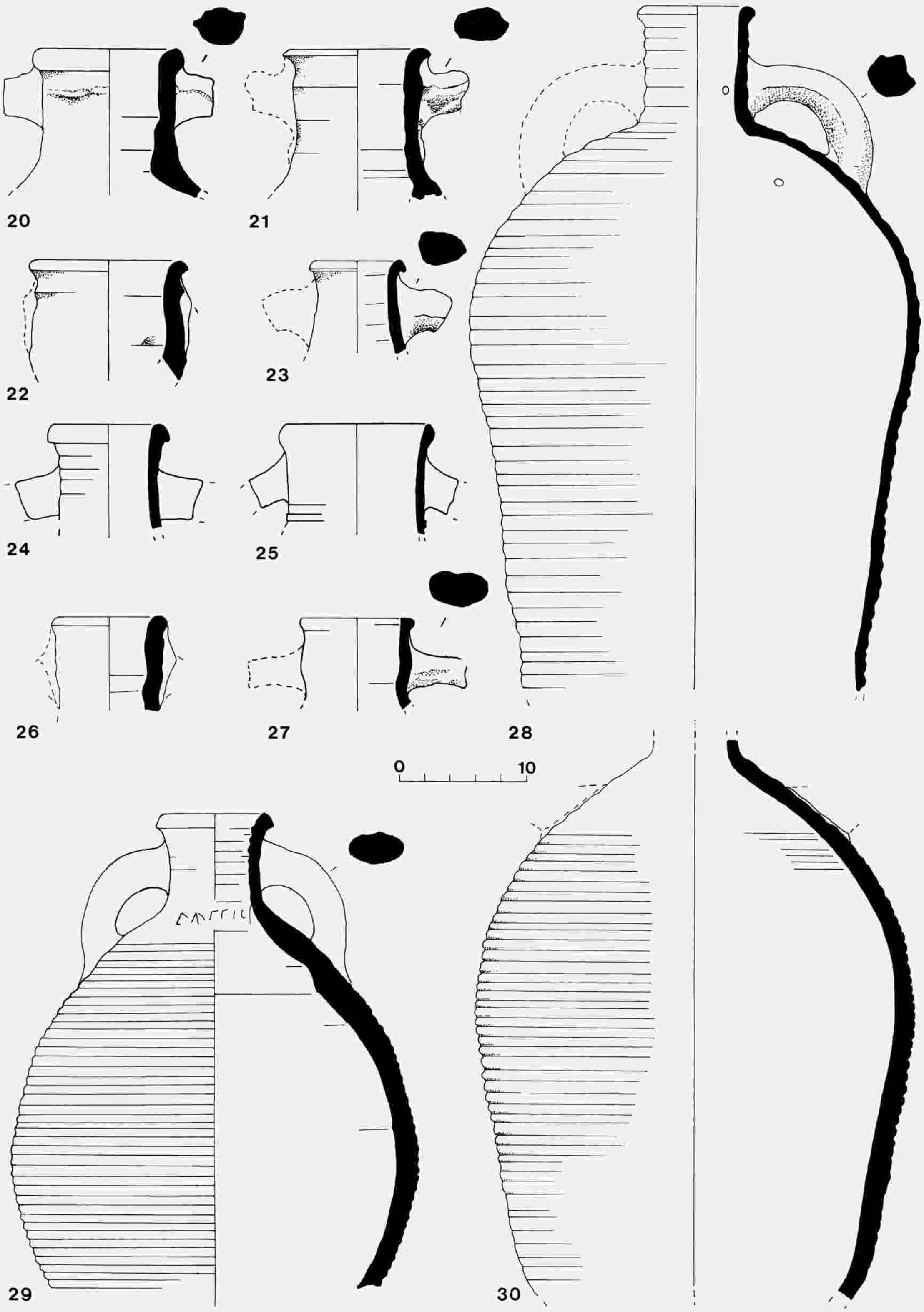


Fig. 2. Ceramic typology.

Type 6 (Fig. 3: 31). Though this is only a body sherd, it is typical and should probably be attributed to Types 173 and 174 at Kellia (Egloff 1977: Pl. 58: 5, 6). These are characterized by an emphasized pointed and elongated body with a narrow neck and carinated shoulder. They are dated to 630–700 CE, with a possible origin in Upper Egypt based on distribution patterns.

Similar amphorae were found at Esna (Jacquet-Gordon 1972: Pl. CCXXVII: P3, 4), where they were used to store wine, as attested by black sap remains. Sometimes a small hole was drilled at the base of the neck to serve as an outlet for carbon dioxide during fermentation.

Amphorae, Varia

Fig. 3: 32: Inverted rounded rim; grooved inner neck and ridged outer neck.

Fig. 3: 33: Everted rounded rim; grooved outer neck with a ridge at bottom.

Fig. 3: 34: Rounded rim; handle extending from under the rim.

Fig. 3: 35: Rounded rim; the handle extending from the rim may suggest that this was not an amphora.

Fig. 3: 36: Rounded, everted outer rim; handle extending from under the rim.

Fig. 3: 37: Solid amphora foot, very coarse ware (bottom missing). The preserved wall above the base is very thick. A similar base was found in the Stratum 4 Byzantine building at Caesarea, dated to the seventh century CE (Adan-Bayewitz 1986: Fig. 3: 12).

Fig. 3: 38: Hollow foot with omphalos at the bottom, yellowish-green ware.

Fig. 3: 39: Solid foot, rounded at the bottom; yellowish ware.

Fig. 3: 40: Hollow foot, rounded at the bottom; brown ware with thin walls. A similar base was found at Esna (Jacquet-Gordon 1972: Pl. CCXXVII: P15).

Cooking Ware

Closed Cooking Pots

Most of the closed cooking pots recall the repertoire of Palestinian types. It is unclear whether they were produced in Sinai or imported from Palestine.

Type 1 (Fig. 3: 41). Cooking pot with a sharp, triangular ridged rim. Long handles extending from rim, short neck ridged at the bottom. Thin, well-fired walls. This is the commonest type of cooking pot presented in this report.

In a discussion of pottery from Jerusalem, Magness dates a similar pot (1993: 220, Form 4B) to the fifth/sixth to late seventh/early eighth centuries CE. These pots were probably brought to Sinai from the Jerusalem area.

Type 2 (Fig. 3: 42, 43). Cooking pot, rounded upper rim, triangular on the outside. Two handles extend from rim to shoulder. The walls are carinated. This coarse-ware type is large and deep and is the second most common cooking pot in Sinai, following Type 1 above.

A similar pot found in the Hippodrome at Caesarea (Riley 1975: 34: 31a, Type 2) is dated from early to mid-sixth century CE, based on the stratum in which it was excavated. A similar vessel from the Byzantine building of Stratum 4 at Caesarea was dated generally to the seventh century CE (Adan-Bayewitz 1986: Fig. 4: 2, Type 2B). This is probably a Palestinian type.

Type 3 (Fig. 3: 44). Cooking pot, extremely coarse ware, thick coarse walls and triangular rim. The handle extends from the rim to the ribbed shoulder. This vessel may have been produced in Sinai.

Type 4 (Fig. 3: 45). Cooking pot with grooved rim, short neck and thin handle extending from the rim to the closely ribbed shoulder. The pot is of relatively good quality, with well-fired thin walls. A similar pot shown by Magness in her discussion of the pottery from Jerusalem (1993: 216, Form 1A) is dated to the second–third centuries CE. This vessel may have been imported to Sinai from Palestine.

Type 5 (Fig. 3: 46). Cooking pot with flat rim, short neck and widely-spaced ribbing on the shoulder. Though the pot is of coarse ware, the walls are relatively thin.

Type 6 (Fig. 3: 47). Cooking pot with extremely wide mouth, and rounded rim slanting inward, forming a kind of shelf; close ribbing on shoulder below neck.

A similar pot found at Kellia, termed by Egloff a 'casserole', has horizontal handles; ribbing, when present, begins at the level of the handles (1977: Pl. 48: 1–3, Types 117–119). These pots are dated from 630 to 700 CE.

Closed Cooking Pots, Varia

Fig. 4: 48: Triangular rim, short neck, handle extending from rim. Not of typical cooking pot ware.

Fig. 4: 49: Flat rim, grooved in the center; short neck. Not of typical cooking pot ware.

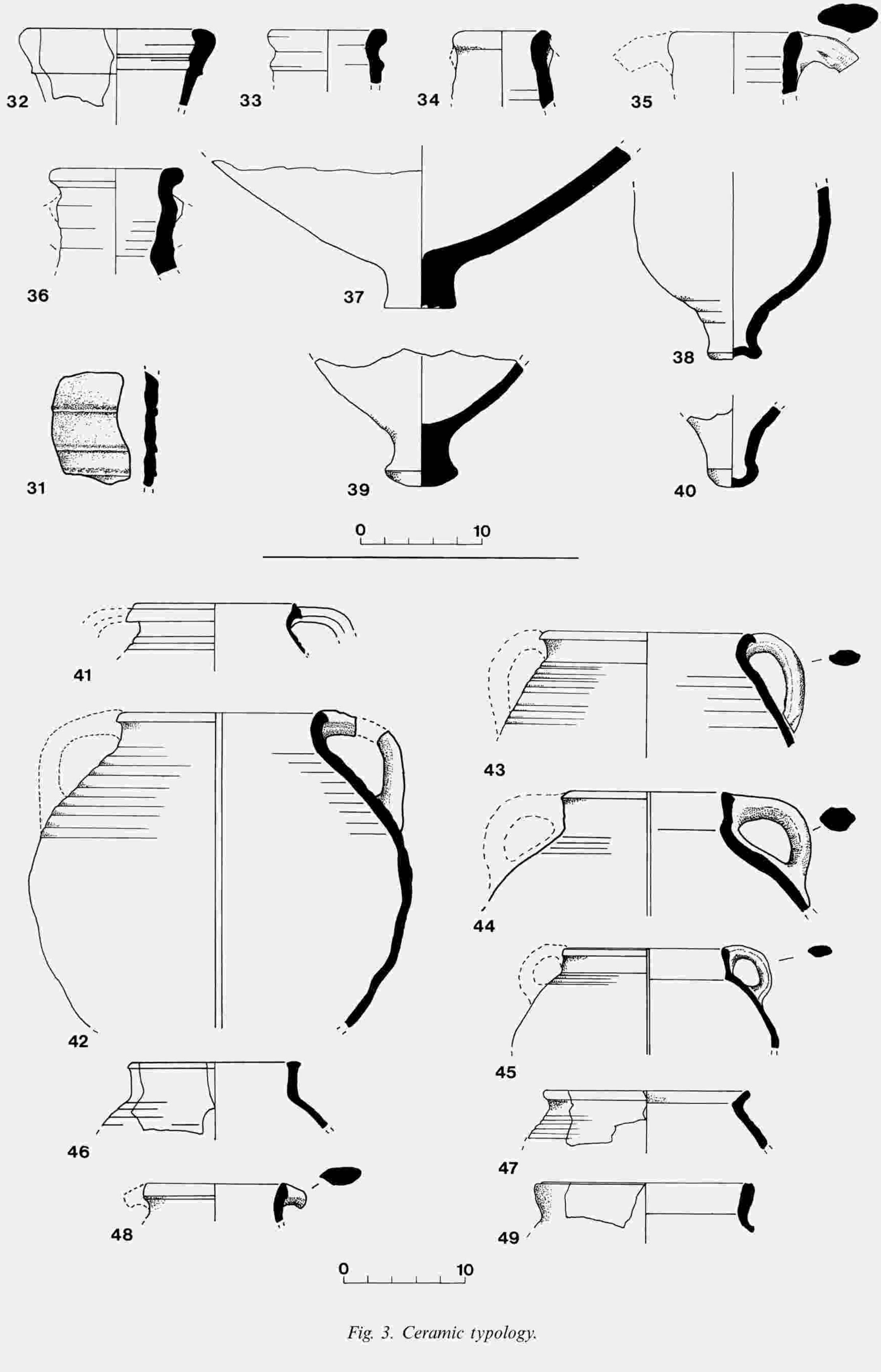


Fig. 3. Ceramic typology.

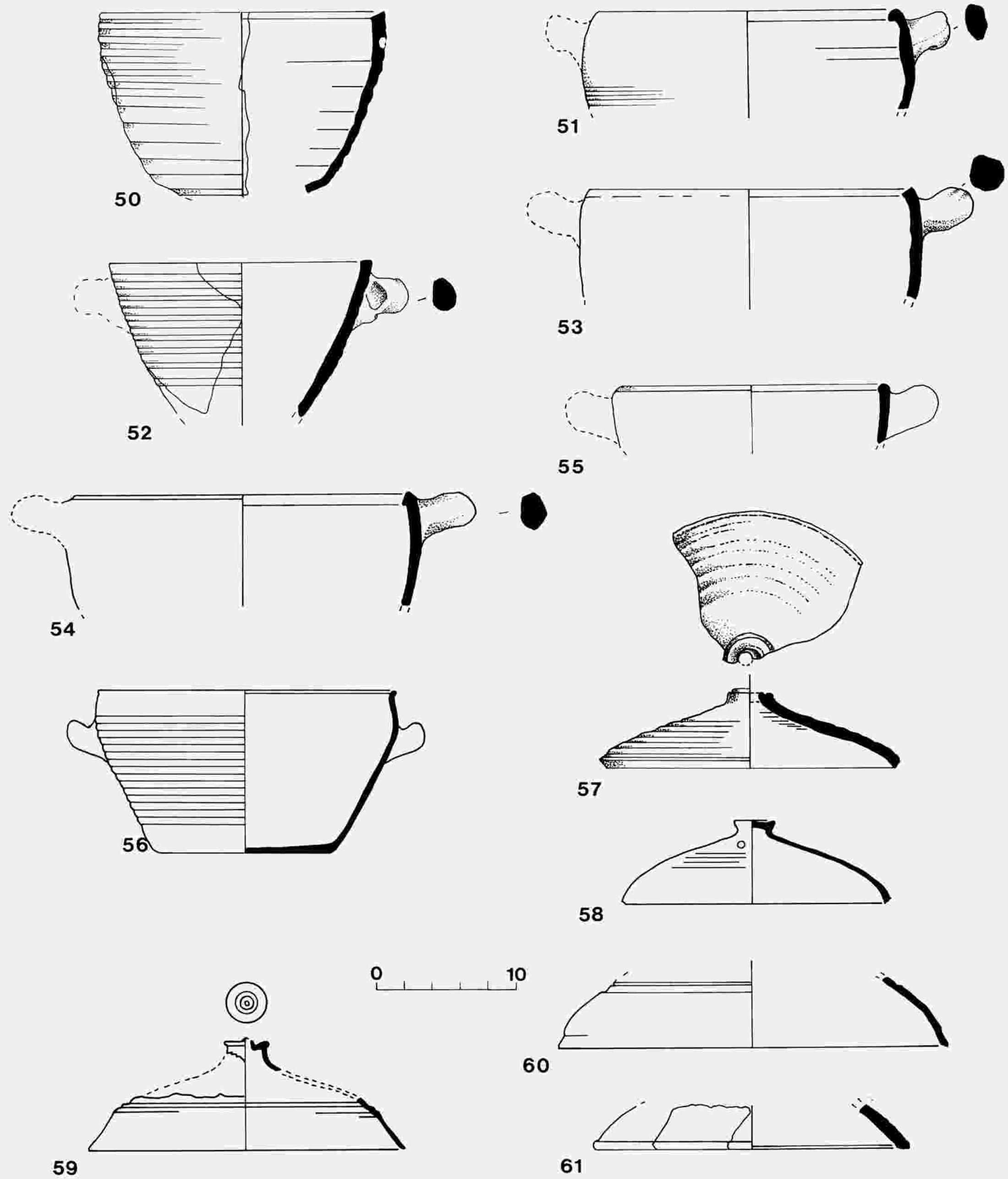


Fig. 4. Ceramic typology.

Open Cooking Pots
Numerous open cooking pots were found in Sinai. Such cooking pots began to appear in the late third century CE and continued in use until the eighth–ninth centuries CE (Magness 1993: 211). Though open cooking pots are also known in Egypt, the closest parallels come from Palestine.

Type 1A (Fig. 4: 50–52). Deep pot with slanting, inverted rim. Of coarse ware, the vessel is ribbed from the rim down. The usually horizontal handles are coarsely made and do not rise above the rim.

A similar pot found at Reḥovot-in-the-Negev (Rosenthal-Heginbottom 1988: Pl.V: 200) was dated by context to the sixth–seventh centuries CE. Similar pots from

Jerusalem and its environs (Magness 1993: 214: 1–3, Casseroles Form 3) were dated to the late seventh and the early eighth to the ninth/tenth centuries CE.

Type 1B (Fig. 4: 53–55). Deep pot of coarse ware, with slanting inverted rim. The handles do not rise beyond the rim. This type is differentiated from Type 1A by its lack of ribbing. This non-ribbed cooking pot comes in various sizes – small to very large. It is difficult to determine whether the lack of ribbing is significant, or merely reflects a variation of Type 1A.

Type 2 (Fig. 4: 56). Deep pot of well-fired metallic ware. The closely-ribbed thin walls cover the vessel almost down to the flat base. The thin rim slants inward. The handles do not protrude beyond the rim.

This type of cooking pot, found in the vicinity of Jerusalem (Magness 1993: 212: 13, Form 1), was dated to the late third and early fourth to the eighth/ninth centuries CE. Magness regards it as the commonest of the open cooking pots: though morphological differences are difficult to discern, the earlier pots (fourth–fifth centuries CE) are relatively shallow, with rounded walls and slightly higher handles. In the sixth–seventh centuries CE a wide range of forms is apparent, from shallow to deep, with handles which do not rise above the rim. On the basis of its wall shape and handles, Fig. 4: 56 belongs to the later group.

Open Cooking-Pot Lids

Type 1 (Fig. 4: 57, 58). Convex lid with rim slanting inward, ribbed walls and a rounded handle in the center. The lid in Fig. 4: 57 has a perforation (diam. 5 mm) in the center of its handle, and Fig. 4: 58 has a similar hole near the handle. Both perforations were drilled before firing, and served as an outlet for steam during cooking.

Similar lids dating to the same range as the open cooking pots (late third–early fourth to the ninth/tenth centuries CE) were found in Jerusalem (Magness 1993: 215). Magness states that there was no morphological development of chronological significance. Similar lids were also found at Kellia (Egloff 1977: Pl. 55: 1, 2, 4, Type 349), dated to the second half of the fifth to the eighth centuries CE, also displaying no significant morphological development.

Type 2 (Fig. 4: 59, 60). Lid with slightly everted flat rim and small step between rim and body; similar to Type 1 but less convex. Fig. 4: 59 has a round handle perforated in the center to release steam (diam. 4 mm). No chronological difference between Types 1 and 2 could be traced.

Open Cooking-Pot Lids, Varia

Fig. 4: 61: Flat rim with square section and protruding exterior.

Jugs and Juglets

The numerous jugs and juglets found in Sinai came in a wide range of shapes, some Palestinian, some Egyptian and others local.

Strainer Jugs

This jug, equipped with a strainer and spout, served as tableware. Egloff proposed that such jugs found at Kellia (1977: Pl. 71: 3–5) were used to cool water, and that the strainer kept insects away.

Fig. 5: 62: Only the neck of this jug, which is ridged at the bottom, has been preserved. The strainer has at least seven intact holes. The relatively thick walls lend this jug a crude appearance.

Fig. 5: 63–65: Rim, neck and strainer with three complete holes (Fig. 5: 63 was perforated before firing, aver. diam. 7 mm). The jug is of cooking-pot ware, well fired with thin walls. The rim top is rounded, with an elongated, square exterior. This type of jug probably had a spout, similar to that shown in Fig. 5: 65. Fig. 5: 64 represents a similar rim.

A jug of this type was found in the Octagonal Building at Caesarea (Magness 1992: Fig. 69: 8), in an assemblage dated to the seventh century CE. At Kellia, a similar jug (Egloff 1977: Pl. 71: 3, Type 220) was also of well-fired ware with thin walls; it had no handle from rim to neck, but probably a handle on the body. This jug is dated to the sixth–seventh centuries CE, and may perhaps be of Palestinian origin.

Fig. 5: 66: Strainer jug which differs from the other jugs, as it is smaller, with a rounded, everted outer rim and a narrow neck. Five holes of the strainer have been preserved in the lower part (diam. of each – 6 mm). Handle below the rim and ribbed body.

Decorated Coptic Jugs

This type of decorated jug is of Egyptian origin. At Karanis in Lower Egypt, Johnson describes this family (with kraters, goblets and jugs being the commonest) as decorated with paint on a white or pink slip (Johnson

1981: 3–6). It was produced in Egypt and dated at Karanis from the third to the mid-fifth century CE.

A large quantity of decorated Coptic ware was recovered at Kellia (Egloff 1977: 47, Pl. 94), with a varied repertoire of motifs – floral, geometric and faunal – painted in black, white and red. The decoration is coarse compared to the delicacy of the jug. These vessels were produced in Lower Egypt, perhaps even at Kellia and its vicinity. Their manufacture began in the fourth century CE and continued until the eighth century CE. Virtually no changes can be discerned during this time span. At Ashmunein (Hermopolis Magna in Upper Egypt), many similarly-decorated sherds were found (Spencer, Bailey and Burnett 1983: Fig. 71: N 22, 26, 28), mainly with geometric and floral designs painted in black and red on a pinkish-white slip. They were dated to 400–550 CE.

Fig. 5: 67: A small body sherd of a closed vessel with relatively thick walls; covered with a pinkish-white slip on which a black line was painted. Fig. 5: 68 is also a small body sherd of a closed vessel with thin walls; it has a pinkish-white slip on which a (floral?) design was painted in red and black.

Trefoil-Rim Jug

Jug with a handle extending from its neck (Fig. 5: 69). Two pinchmarks on both sides of the mouth; chunks of clay adhere to the neck. A parallel to the jug was found at Esna (Jacquet-Gordon 1972: Pl. CCXXVII: N13).

Jugs, Varia

Fig. 5: 70: Rim with round top, high neck, and handle from rim to shoulder; this relatively large jug has thick walls and a ribbed shoulder.

A similar jug excavated at Reḥovot-in-the-Negev (Rosenthal-Heginbottom 1988: Pl. IV: 159) was dated by context to the sixth–seventh centuries CE.

Fig. 5: 71: Shoulder fragment of a jug with ridges at the bottom of the neck and a roulette decoration on the shoulder. The thin and well-fired walls are covered with a fine slip the color of the ware and burnished.

The fragment recalls the Fine Byzantine Wares in its fine slip, delicate burnish, and roulette-like decoration on the shoulder (Magness 1993: 236). This ware originated in the vicinity of Jerusalem, and the closed vessels of this family date from the early sixth to the first half of the eighth century CE. The fragment presented here is too small for a definite attribution to this ware.

Fig. 5: 72: Triangular rim; the fragment is too small to determine whether the vessel had a handle.

Fig. 5: 73: Body fragment of a shoulder and the beginning of a handle. The ribbed body is of well-fired ware.

Fig. 5: 74: High, hollow foot, with a prominent ridge in the center and rounded lower edges.

A similar base (though lacking the center ridge) uncovered at Kellia (Egloff 1977: Pl. 7, Type 214) formed part of a slipped and decorated jug dated to the seventh century CE. A similar base found at Ashmunein (Spencer, Bailey and Burnett 1983: Fig. 68: M5.3) was attributed to the class of undecorated jugs, usually with two handles and often a strainer and spout. At Ashmunein it was dated to 390–500 CE; the vessel was manufactured in Egypt.

Fig. 5: 75: Foot, very similar to Fig. 5: 74, though it has a small hole (diam. 1.2 cm) perforated before firing, in the upper part of the base. Coarse white slip around the hole. The function of the hole could not be determined.

Fig. 5: 76: Large ring base with an omphalos; walls of thick coarse ware. A similar base found at Ashmunein (Spencer, Bailey and Burnett 1983: Fig. 68: M5.1) was dated to 400–450 CE.

Fig. 5: 77: Ring base on hollow foot; coarse ware covered with irregular splashes of black paint.

Fig. 5: 78: Large coarse ring base, with omphalos.

Fig. 5: 79: Ring base with prominent omphalos.

Fig. 5: 80: Large flat base of jug or larger vessel surrounded by two grooves.

Yellow Ware Jugs

Group of jugs of varying shapes, all made of a ware of similar quality and color. No parallels were found for any of these jugs. The ware is greenish-yellow in color and is fairly porous; it was probably produced in Sinai.

Fig. 5: 81: Rounded rim; neck with a ridge at midway.

Fig. 5: 82: Rounded rim top with everted exterior.

Fig. 5: 83, 84: Thickened triangular rim.

Fig. 5: 85: Rounded rim with high neck.

Fig. 5: 86: Fragment of handle and shoulder.

Fig. 5: 87: Wide omphalos base.

Juglets

Only a few juglets were recovered in Sinai.

Type 1 (Fig. 5: 88). Stepped rim with a handle from rim to shoulder; the thin walls are made of well-fired ware. It is attributed to the Fine Byzantine Wares which originated in the vicinity of Jerusalem, dated from the mid-sixth to the first half of the eighth century CE (Magness 1993: 240, Form 2A).

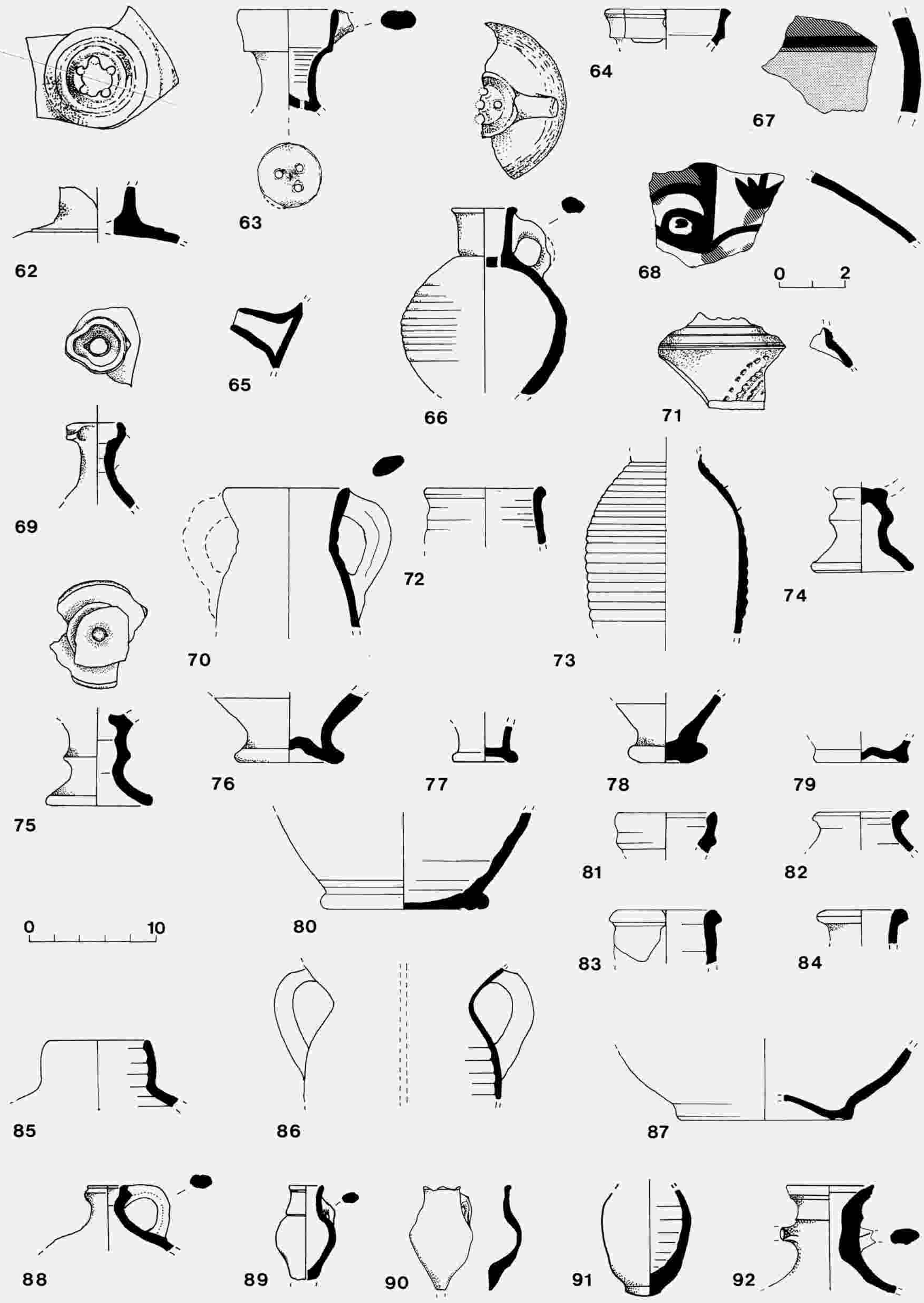


Fig. 5. Ceramic typology.

Type 2 (Fig. 5: 89, 90). Small juglet with pointed base, rounded rim top and one handle on the shoulder. No parallels were found for this juglet, which may have been made in Sinai.

Fig. 5: 89 is of light brown ware and has a white slip; Fig. 5: 90 is of reddish-brown ware. In view of their unique shape, these juglets may have been used by the pilgrims reaching Sinai (see Dahari, this volume).

Juglets, Varia
Fig. 5: 91: Juglet with flat button base, relatively thick-ribbed walls, covered by a fine slip on the inside.

Flask. Fig. 5: 92: The single flask found in the Sinai corpus has a rounded rim top, with a narrow inner neck (diam. 1.5 cm) and a prominent ridge on the outside; two handles extend from below the ridge. The flask is coated with a fine white slip.

Water Jugs

A relatively large number of jugs used to draw water from wells were found in Sinai. A rope was tied around the rim and the vessel was lowered into the well and raised full of water. These jugs were probably manufactured in Sinai. They can be divided into two types with clearly different rims.

Type 1 (Fig. 6: 93–95). Triangular rim, wide ovoid body, ribbed from the shoulder down. The base was probably round. Traces of applied clay adhere to the rim. The coarse ware is porous due to straw inclusions which were consumed in the kiln.

Type 2 (Fig. 6: 96). Rounded rim top and everted rim exterior; traces of clay adhere to the rim. Ware of poor quality, containing many organic inclusions. The body is ribbed inside and outside.

A similar jar from Kellia (Egloff 1977: Pl. 73: 13, Type 248), designated as 'a pot used to draw water', was dated to 630–730 CE.

Kraters/Basins

Large Kraters/Basins
A relatively large number of kraters or basins of various types were found in Sinai. For the majority, parallels at sites outside of Sinai are lacking, suggesting that they were produced locally.

Type 1 (Fig. 7: 97, 98). Krater of very coarse ware; flat rim with widely-spaced grooves. Fig. 7: 98 has a wavy line incised on the outside. The large size of these kraters/basins indicates that they were designed to stand on the floor. These vessels postdate the Byzantine period and should be attributed to the Early Islamic period, though in view of the lack of parallels, this attribution remains tentative.

Type 2 (Figs. 99, 100). Fig. 7: 99 is a large krater with a rounded rim top, overhanging outside and forming a long triangular section. The thick walls are ribbed both inside and out. A self-slip covers the interior of the vessel. Fig. 7: 100 is similar, though not identical, to Fig. 7: 99.

Hayes discusses kraters termed 'glazed-bottom mortaria' found at Sarachane in Istanbul, Turkey (Hayes 1968: Pl. D: 24, 25). Whether the Sinai krater represents such a mortarium is difficult to determine, as it is too fragmentary. The rims of both are similar and it is possible that they represent the same type, or a local imitation. The mortaria from Sarachane were dated to the seventh century CE.

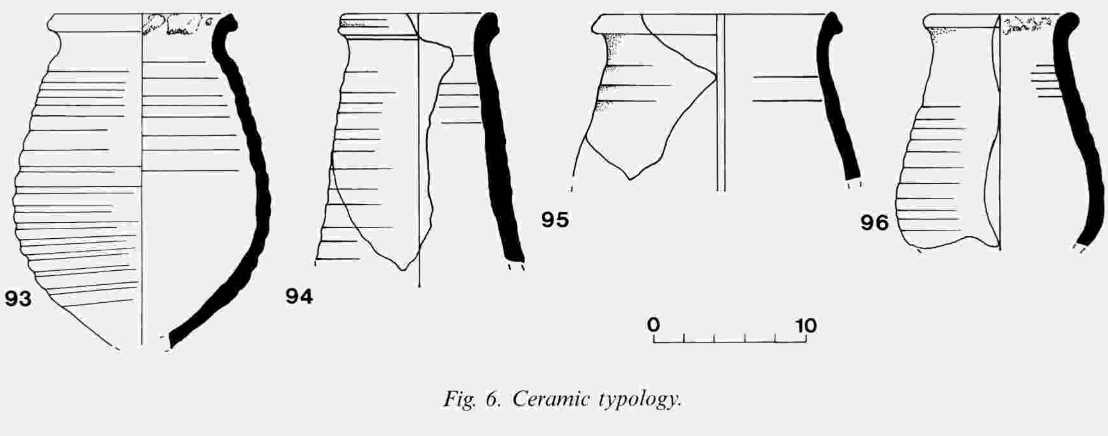


Fig. 6. Ceramic typology.

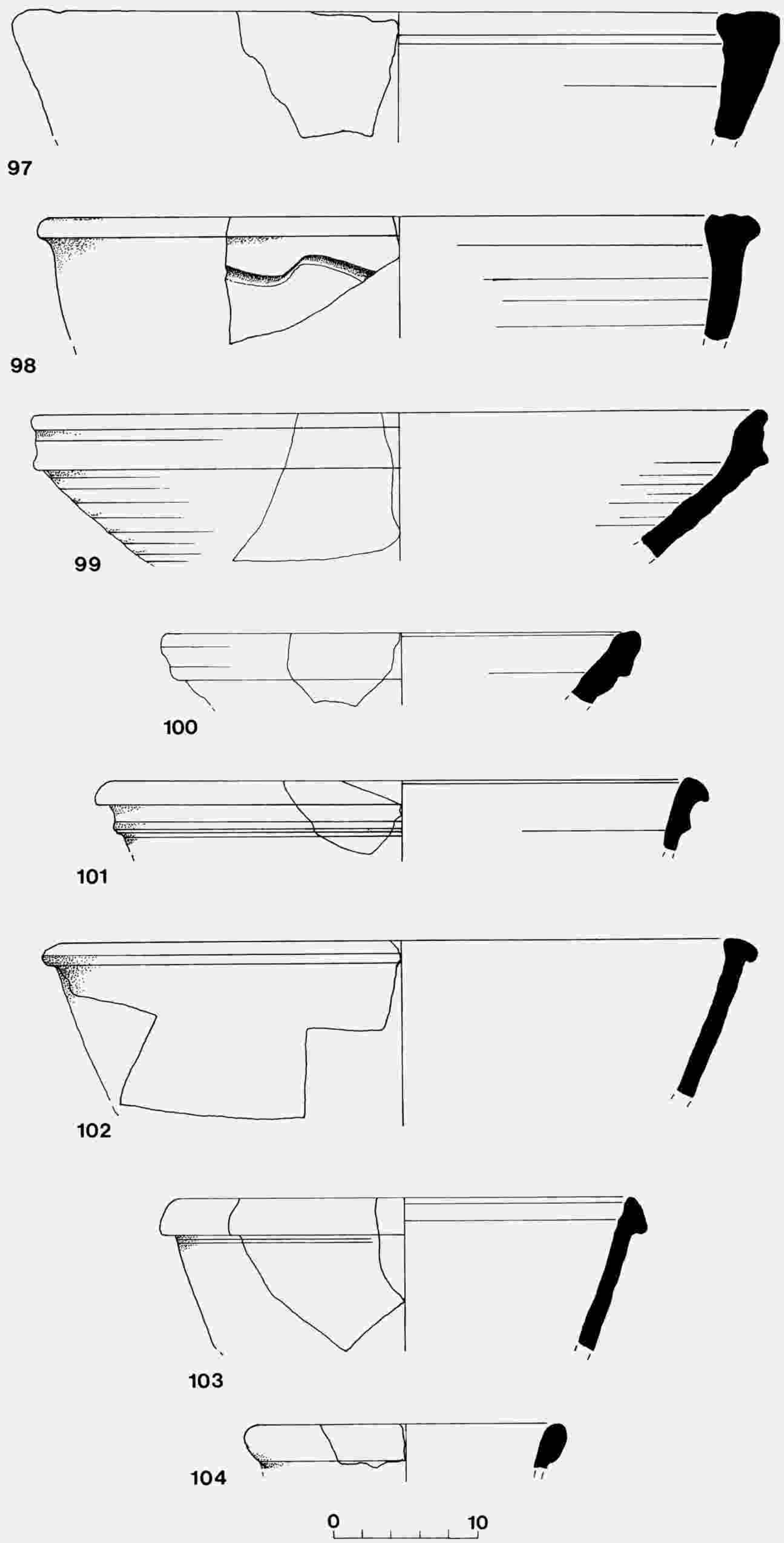


Fig. 7. Ceramic typology.

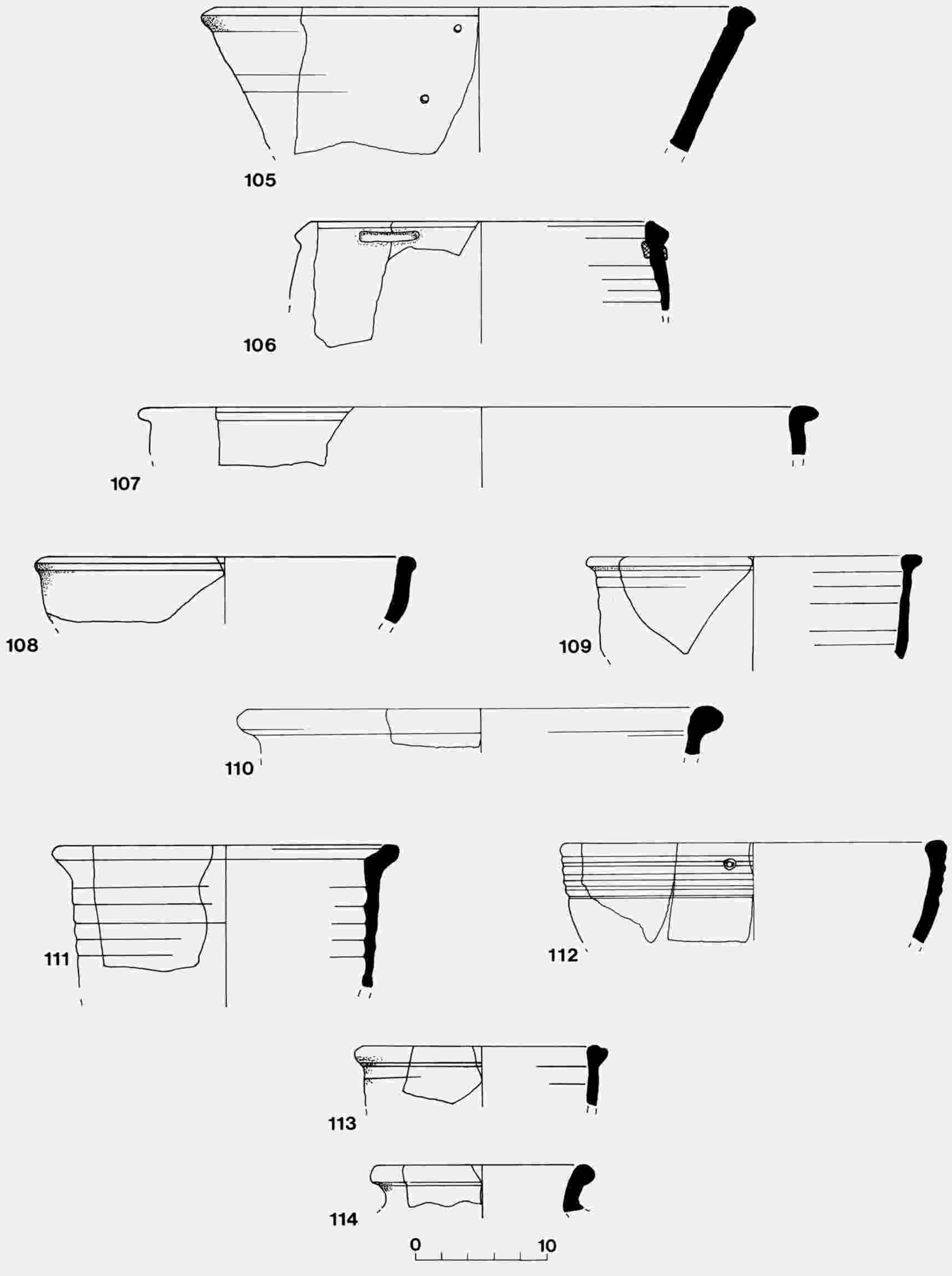


Fig. 8. Ceramic typology.

Type 3 (Fig. 7: 101). Overhanging exterior rim with ridge just below rim.

Type 4A (Fig. 7: 102, 103). The commonest krater in the Sinai corpus, with a rounded rim top and overhanging rim exterior. Its straight walls form a deep krater of relatively coarse ware. A fine white slip covers part of the vessel. No clear parallels for this type were found, suggesting that it may have been manufactured in Sinai.

Type 4B (Fig. 7: 104). This type is generally similar to Type 4A, but with a round thickened and slightly overhanging rim; coarse ware.

Type 4C (Fig. 8: 105, 106). Deep krater with rim protruding both on the inside and the outside; relatively coarse ware, white slip. Fig. 8: 105 has two holes used in an ancient repair, as indicated by the small fissures around each hole. One hole is just below the rim (diam. 6 mm) while the other is 5.4 cm below that hole. The crack between these two holes is probably the reason for the repair, suggesting that a cord or metal wire was threaded between them to hold the two pieces together.

Fig. 8: 106 also bears traces of an ancient repair; two pieces of lead (each *c*. 4.5 cm long) found on the vessel had been threaded from inside to outside, joining the broken pieces.

Type 5 (Fig. 8: 107–109). Average-size krater, with delicate ledge rim, white slip. Fig. 8: 109 has thin walls and is well fired.

Kraters, Varia

Fig. 8: 110: Rounded, thickened rim with prominent ledge on the exterior; coarse ware; thin white slip.

Fig. 8: 111: This type has a rim rounded on top, with an angled ledge on the inside. Both interior and exterior are of ribbed, well-fired ware, with a white slip inside and outside.

Fig. 8: 112: Rounded, thickened rim; prominent ribbing on outside of the upper body, with lighter ribbing inside. Relatively coarse ware. A hole (diam. 7 mm) was drilled after the vessel was fired and a hole may have been drilled diametrically opposite in the part of the vessel now missing; these holes probably served for inserting a cord or wire, either for suspending the vessel or for joining two broken pieces.

Fig. 8: 113: Almost horizontal rim top with small groove in center; the rim exterior is triangular in section. Thin groove under the rim; gray slip.

Fig. 8: 114: Everted rim with rounded exterior; short neck. A break in the rim may indicate the existence of a handle. The vessel is covered inside and outside with a grayish slip. Its identification as a krater is not certain.

Bowls

Large Decorated Bowls

Most of the bowls in this group were probably imported from Egypt. Somewhat larger than regular bowls, these are usually decorated with a painted or finger-indented design, or covered with a slip.

Type 1 (Fig. 9: 115–118). Deep bowls with a triangular ledge rim, usually decorated. The rim of Fig. 9: 115 has a painted wavy black line with black dots enclosed by a black frame. The background is painted reddish-brown. Traces of decoration are visible inside the vessel, as well as soot-marks on the exterior, especially around the rim.

An almost identical bowl found at Kellia was termed by Egloff a goblet (some examples had a high foot). These were used to burn incense, and bear traces of soot on the lower interior and on the outer rim (Egloff 1977: Pl. 84: 5, Type 301). Though Egloff mentions that this vessel may also have been used as a small brazier, in his opinion the incense burner theory is more likely, as some of the vessels were found on the church floor and apparently had some connection with the liturgy. Egloff describes these vessels as usually bearing a black or red design on the rim and often on the interior. Sometimes the rim is finger indented as well. These goblets begin to appear at Kellia from the sixth century CE onward, until the seventh or even the early eighth century CE. According to Egloff's typological scheme, the Sinai example dates to the seventh century CE.

The triangular rim of Fig. 9: 116 is sharper than that of Fig. 9: 115 and is painted with a red wavy line with red dots in the curves. There are traces of red paint on the outside of the rim and inside the vessel as well. The red decoration is painted on a white slip. A bowl of similar shape but with a different decoration was found at Karanis (Johnson 1981: Pl. 16: 116); there the vessel had a convex base instead of a high foot. Johnson attributes these bowls to the 'Coptic Painted Wares', whose date, based on Karanis, ranges from the third to the mid-fifth century CE. The bowl from Karanis shown on Pl. 16: 116 is specifically dated to the second half of the second to the early third century CE.

Fig. 9: 117 has a ledge rim with finger indentations on the edge. The vessel is white slipped inside and brown slipped outside. Faint traces of red paint can be discerned on the slip.

At Kellia (Egloff 1977: Pl. 76:3, Type 264 or Pl. 76: 4, Type 270) a similarly-shaped bowl is termed a deep plate (Type 264) or a small bowl (Type 270). Type 264 is slipped inside and outside; Type 270 is white slipped with black-painted decoration. The dates of both types are uncertain.

Fig. 9: 118 also has a triangular rim, painted red inside and outside. The red color continues under the rim into a line on the body. The ware is very coarse, indicating that this may be a local imitation.

Type 2 (Fig. 9: 119). Medium-sized bowl with relatively thick rounded walls, and rounded rim thickened on the outside; coarse ware, red slip on the exterior. The gray color of the interior is the result of burning.

Type 3 (Fig. 9: 120, 121). The ridged rim is rounded and slightly overhanging on the exterior. Fig. 9: 120 is red slipped inside and on the rim, with thick walls of coarse ware. The rim of Fig. 9: 121 is similar to that of Fig. 9: 120, though smaller, and the walls are thinner. The rim has a perforation made after firing (diam. 4 mm), with an identical hole on the rim, 2.5 cm from the first. These do not seem to be repair holes as there are no signs of a break between the two; their function is not clear. This bowl has no slip.

Type 4, Carinated Bowl (Fig. 9: 122, 123). Only the carination and part of the decorated body were preserved of this type; the thick walls are of coarse ware, ribbed inside.

Fig. 9: 122 has a sharp low carination; the base has not been preserved. The traces of red paint are clearer on the exterior than on the interior of the carination. Thick, light green lines are painted outside, covered by almost transparent black lines on which are white circles.

Egloff places such vessels from Kellia among the cooking wares, calling them "cooking pot with a vertical wall, round rim and painted exterior" (Egloff 1977: Pl. 45: 10, Type 99). When the vessel lacks the characteristic soot, it is difficult to differentiate kraters used in preparing food from pots used in cooking. Pl. 45: 10 at Kellia is decorated with black and white paint and has no slip; it too is ribbed inside. Egloff dates this vessel to the early seventh–eighth centuries CE.

A similar vessel found at Esna (Jacquet-Gordon 1972: Pl. CCXXI: E11) is red slipped and has a row of dots on the interior of the rim and on the exterior of the body. A frequent design consists of scalloped rows on the upper part of the vessel.

These are 'deep bowls with carinated sides' at Karanis (Johnson 1981: Pl. 16: 117), where they were red slipped with pink decoration on rim and body. The 'Painted Coptic Wares' at Karanis were dated from the third to the fifth century CE. The bowl shown on Pl. 16: 117 at that site was specifically dated to the late third–mid-fifth centuries CE.

A similar bowl found at Ashmunein was grouped with the carinated bowls (Spencer, Bailey and Burnett 1983: Fig. 54: G14.3); the excavators reconstructed a high foot for this bowl. Bailey attributes this bowl to the group he defines as Egyptian Red Slip H at Ashmunein, where they were produced.

A similar bowl in the Royal Ontario Museum is ascribed by Hayes to the family of Egyptian Red Slip Wares B (ERS B) (1976: Fig. 8: 133). This bowl, which has a thin red slip and is decorated with purple scallops and white paint, was dated to the sixth century CE.

Fig. 9: 123, a carinated body sherd, has a delicate roulette design slightly above the carination, topped by pale red-painted dots in an irregular pattern. The interior is not ribbed.

A similar bowl at Kellia was termed a cooking pot (see parallel to 9: 122 above; Egloff 1977: Pl. 45: 2, 3, Type 100) and dated to the fifth century CE. It is painted with black dots and white scallops or dots.

Late Roman Red Ware Bowls

A small quantity of imported Late Roman Red Ware bowls was recovered in the Sinai corpus. These bowls were manufactured at four production centers, as defined by Hayes (1972; 1980): North Africa (African Red Slip Ware – ARS), Upper Egypt (Egyptian Red Slip Ware A – ERS A), Asia Minor, especially Phocaea in Western Turkey (Late Roman C Ware – Phocaean Red Slip Ware – LRC), and Cyprus (Cypriot Red Slip Ware – CRS). The more commonly found bowls in Sinai were manufactured in North Africa and Upper Egypt; only two of the recovered bowls came from Asia Minor, while one originated from Cyprus, with an additional possible example of uncertain identification (Fig. 10: 142).

At Kellia, the ARS was predominant up to the mid-sixth century CE, when the quantity of the CRS increased; by the seventh century CE the ERS constituted the majority (Egloff 1977: 189). In the Sinai corpus, the

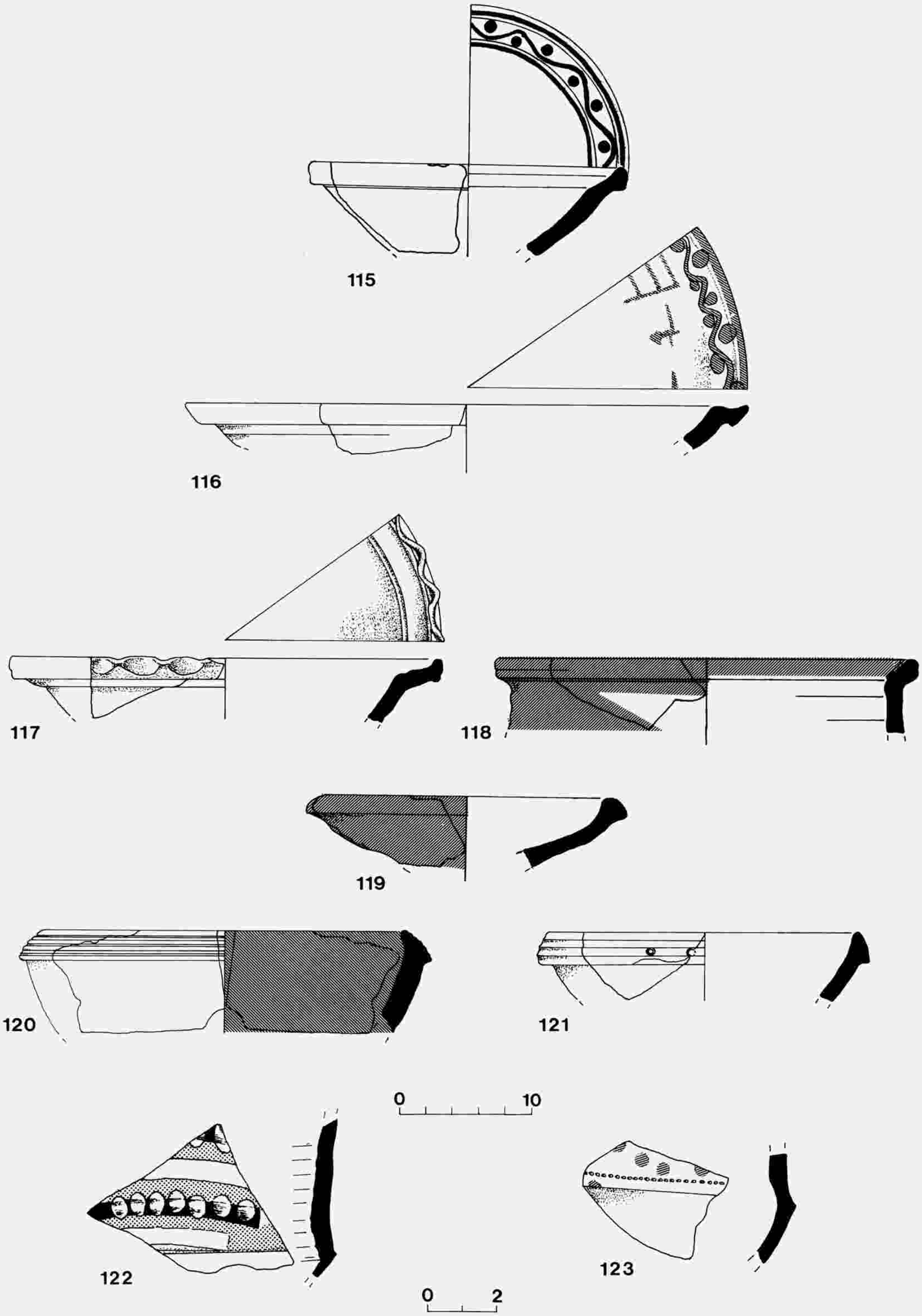


Fig. 9. Ceramic typology.

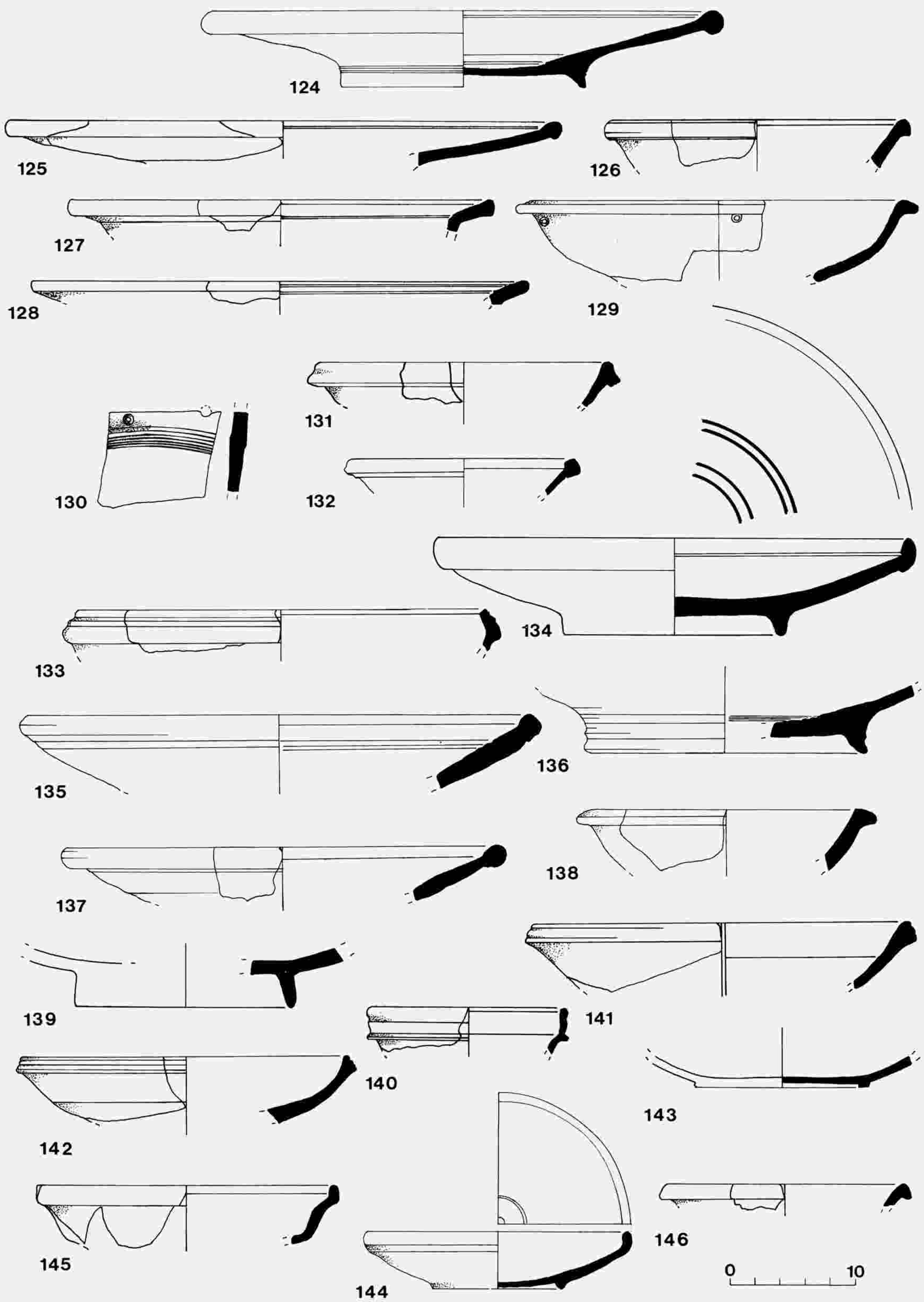


Fig. 10. Ceramic typology.

CRS-dominant phase is lacking. The ERS bowls found in Sinai are among the later examples. This may be related to the Vandal conquest of Carthage (Hayes 1980: 516–517) in the mid-fifth century CE. Though the pottery workshops in Carthage which produced the ARS continued to manufacture these vessels, their export was cut off and the CRS replaced the ARS. With Justinian's conquest of North Africa in 533 CE, though the export of ARS was renewed, there was fierce competition with merchandise from other centers of production (such as central Tunisia) which had filled the void during their absence from the market.

African Red Slip Bowls. This is the most long-lived of the four groups (Hayes 1972: 13; 1980: 514–517), beginning in the second century CE and ending in the late seventh century CE in the North African workshops.

Hayes notes that during the Vandals' conquest of Carthage (from 430 CE onward), the pottery workshops which had produced goods exported to the Mediterranean countries began to manufacture less and to export even less. Gradually, the pottery workshops in Central Tunisia took their place.

The following are the various types of the North African group found in Sinai, with parallels among Hayes' types:

Form 105 (Fig. 10: 124, 125): The most characteristic bowl manufactured in the final phase of the North African production centers (Hayes 1972: Fig. 31), from the early to the mid-seventh century CE. This type has a round rim, slightly thickened inside and outside. The bowl is relatively large and shallow and usually has a ring base.

Form 99 (Fig. 10: 126): Hemispherical bowl with small triangular rim (Hayes 1972: Fig. 28, Type C), dated from 560/580 to 620 CE.

Form 66.1 (Fig. 10: 127): Large bowl with ledge rim which has two grooves on top and is triangular on the outside. Hayes (1972: Fig. 18) dates this type to the early fifth century CE.

Form 42 (Fig. 10: 128): Only a small part of the rim has been preserved, so that the parallel is not entirely certain. The fragment represents a large bowl with a ledge rim rounded on the end, with two delicate ridges. If the parallel is viable, then this is one of the earliest bowls in the Sinai corpus. Hayes (1972: Fig. 10) dates this bowl to the first half of the third century, no later than 250 CE.

Form 93 (Fig. 10: 129): Large bowl with flat rim and high foot base (Hayes 1972: Fig. 27: 19, Type B). Hayes dates this type between 500 and 540 CE. This example has two ancient repair holes.

African Red Slip, Varia (Fig. 10: 130). This base probably belongs to the ARS, though the sherd is too small to be certain. It is an exceptionally delicate ring base decorated inside with concentric circles, with two ancient repair holes 5.5 cm apart (each diam. 4 cm).

Late Roman C Ware (Phocaean Red Slip Ware) Bowls. This group was manufactured in Asia Minor, with the main center of production at Phocaea in western Turkey (Hayes 1980: 525). The ware is characteristic of the eastern Mediterranean in the fifth–seventh centuries CE (Hayes 1972: 323).

Only two bowl rims attributed unequivocally to this group were found in the Sinai corpus. This bowl is relatively rare at Kellia as well (Egloff 1977: 67).

Form 3 (Fig. 10: 131): Triangular rim dated by Hayes (1972: Fig. 69: 25, Type F) to the mid-sixth century CE.

Form 10 (Fig. 10: 132): Bowl with a triangular rim slightly thickened on the inside. Hayes (1972: Fig. 71) dates this type from the late sixth to the early seventh century CE.

Cypriot Red Slip Ware Bowls. The origin of this group is not entirely certain (Hayes 1980: 528, 371). Cyprus, where large quantities of these bowls were found, is probably the most suitable candidate for the center of production. The group dates from the late fourth century CE to 700 CE. At Kellia, Egloff (1977: 65) maintains that the Cypriot bowls (which he terms Late Roman D, casting doubt on their Cypriot origin) replace the North African bowls from the mid-fifth and mainly the sixth century CE, as a result of the abandonment of the pottery workshops in Tunisia and Morocco. This group is well represented at Kellia as opposed to the single certain example in the Sinai corpus.

Form 9 (Fig. 10: 133): Bowl with a long rim rounded on the outside with two grooves in the center. Hayes (1972: Fig. 82: Type C) dates this bowl from 580/600 to the late seventh century CE.

Egyptian Red Slip Ware A Bowls. Hayes divides the ERS into three groups – A, B and C, dating at the earliest from the fourth to the seventh century CE (1972: 387). Bowls of ERS A have been recovered in Sinai. Hayes notes that among the ERS, this group is of the finest ware, a cheaper local ware imitating the ARS. The group, produced in the area of Assun (Hayes 1980: 530),

is generally characterized by low-grade ware fired hard, with a thick slip inside the bowl covered by prominent burnish lines. Egloff (Kellia 1977: 65) is of the opinion that already in the early fifth century CE, the ERS appeared in the confines of the Nile Valley, while its major distribution outside this region began only in the seventh century CE. (For a comprehensive summary of the ERS bowls see the Ashmunein report – Spencer, Bailey and Burnett 1983: 27.)

Type 1 (Fig. 10: 134–136): Hayes discussed this type under the heading 'Related Fabrics' of the ERS A (1972: 397). This group, characterized by a yellowish-cream slip, is dated to the late sixth and early seventh centuries CE. Its production center (Hayes 1980: 531–532) was located in the Luxor region, from where it was distributed afar, though in lesser quantities than the red-slipped vessels of ERS A.

A group of similar bowls from Alexandria (Rodziewicz 1976: Pl. 32: W6a) was termed 'Group W'. In Rodziewicz' opinion, this group imitates silver ware, which would account for its white/creamy/yellow color. Based on the finds from Kum ed-Dikke at Alexandria, this group appears after the disappearance of 'Group A' (same as ARS) in the late sixth and early seventh centuries CE.

Fig. 10: 134: Complete bowl with rounded rim. The high ring base has incised concentric circles on and near it. Matt yellowish slip inside and outside.

Fig. 10: 135: Round thickened rim grooved on top. Glossy oily yellowish slip on the inside.

Fig. 10: 136: High ring base with concentric circles inside; though the slip is almost entirely rubbed off, its traces indicate that it had been of the glossy, oily, yellowish kind.

Type 2 (Fig. 10: 137): Bowl with thickened, rounded rim, grooved on the lower exterior. The ware is relatively coarse, covered by a peeling red slip inside and outside.

Similar bowls were found at Ashmunein (Spencer, Bailey and Burnett 1983: Fig. 47: E87.1 88), where they were designated ERS A imitations of ARS Forms 104–105 bowls; the date ranges from 530 to 700 CE, or even slightly later.

Type 3 (Fig. 10: 138): Ledge rim of coarse ware, covered inside and on the rim with a thick, oily, red slip with micaceous inclusions. Thin, matte slip on the outside.

Hayes describes a similar bowl (1972: Fig. 85h) of the ERS A group, with a high ring base. In his opinion, this bowl is an imitation of ARS Forms 94A and 93A, dated to *c*. 500 CE. A similar bowl found at Karanis (Johnson 1981: Pl. 4: 32) was attributed to the ERS A group as well and was dated from the early fourth to the mid-fifth century CE.

Type 4 (Fig. 10: 139): High ring base made of coarse ware, burnished, oily red slip inside and outside.

Hayes published a similar base of a large bowl (1972: Fig. 85d) of the ERS A group, dated to the first half of the sixth century CE.

Type 5 (Fig. 10: 140): Small bowl with rounded rim, grooved at the bottom on the outside, with a prominent ridge at the beginning of the carination. Reddish-brown slip inside and outside.

A similar bowl from Kellia (Egloff 1977: Pl. 40: 11, Type 39) was categorized as ERS and attributed to the relatively late date of the early eighth century CE. This type begins to appear in the sixth century CE, when the ridge is a shelf-like protrusion (Hayes 1972: Fig. 86: U, Form 91). A similar bowl from Ashmunein (Spencer and Bailey 1986: Fig. 42: E201), designated ERS A, was dated from the sixth to the early eighth century CE.

Type 6 (Fig. 10: 141): Bowl with round rim ridged on top and bottom; thin dark red slip. Hayes published a similar bowl of the ERS A group (1972: Fig.86: M), dated to the seventh century CE.

A bowl of this kind from Ashmunein (Spencer, Bailey and Davies 1986: Fig. 42: E198) was attributed to the ERS A group, dated from the sixth to the early eighth century CE.

Type 7 (Fig. 10: 142): Bowl with ridged rim, covered by a dark red slip. Its poor state of preservation makes it difficult to determine the ware and slip type of the bowl, so that its attribution to either of the groups (see below) is uncertain.

A similar bowl found at Ashmunein was attributed to the ERS H group (Spencer, Bailey and Burnett 1983: Fig. 40: E44.1). These bowls are imitations of ARS Forms 84, 86 or CRS Form 2 bowls, which themselves are imitations of ARS Form 84. As no Cypriot types were found at Ashmunein, the bowl should be considered an imitation of the North African bowls. The bowl from Ashmunein is dated to 475–550 CE. Thus, while it is possible that the Sinai bowl belongs to the CRS group (Hayes 1972: Fig. 80: Form 2), the dearth of Cypriot vessels in Sinai, as at Ashmunein, suggests that this bowl was of Egyptian origin.

Egyptian Red Slip Bowls, Varia (Fig. 10: 143). Shallow ring base, coarse ware with traces of red slip outside. Though it is difficult to determine its class, the vessel is included in the ERS due to the affinity of its ware to this group.

Late Roman Red Ware Bowls, Varia (Fig. 10: 144). Bowl, inverted, round-topped rim and ring base with concentric circle in center; red slip inside and outside.
Fig. 10: 145: Bowl with triangular rim and a low body carination.
Fig. 10: 146: Bowl with triangular rim, orange-red slip inside and outside.

Coarse Bowls
There are relatively few bowls of coarse ware in the Sinai corpus:
Fig. 11: 147, 148: Bowl with round rim grooved on the outside and with grooves at mid-body above the carination. Fig. 11: 147 has a glossy red slip inside and outside. Fig. 11: 148 is very similar to No. 147, but lacks a slip. A similar bowl found at Reḥovot-in-the-Negev, though without slip (Rosenthal-Heginbottom 1988: Pl. IV: 173), was dated to the sixth–seventh centuries CE.
Fig. 11: 149: Bowl with rounded rim top and vertical stance, wavy incised line on the bottom; well fired and burnished inside and outside.

This bowl clearly belongs to the Fine Byzantine wares produced in the vicinity of Jerusalem from the mid-sixth to the eighth/tenth century (Magness 1993: 193–194, Form 4). The bowls from this group (similar to our Fig. 11: 149) are dated from the early sixth to the late seventh century CE).
Fig. 11: 150: Large, shallow bowl with rounded rim slightly thickened inside and outside, coarse unslipped ware. This bowl is a local imitation of ARS Form 105 as defined by Hayes (1972: Fig. 31), shown in the present report in Fig. 10: 124, 125. Form 105 is dated from the early to the mid-seventh century CE.
Fig. 11: 151: Rounded rim, red slipped inside and outside.
Fig. 11: 152: Rounded rim.

Cup
Fig. 11: 153: Rounded, delicate rim, slightly everted on the outside; the vessel is thin walled, of well-fired ware. This cup belongs to the Fine Byzantine Wares produced in the vicinity of Jerusalem, defined by Magness as 'straight-walled bowls' (1993: 197: 3, Form 1F), dated to the seventh–eighth centuries CE.

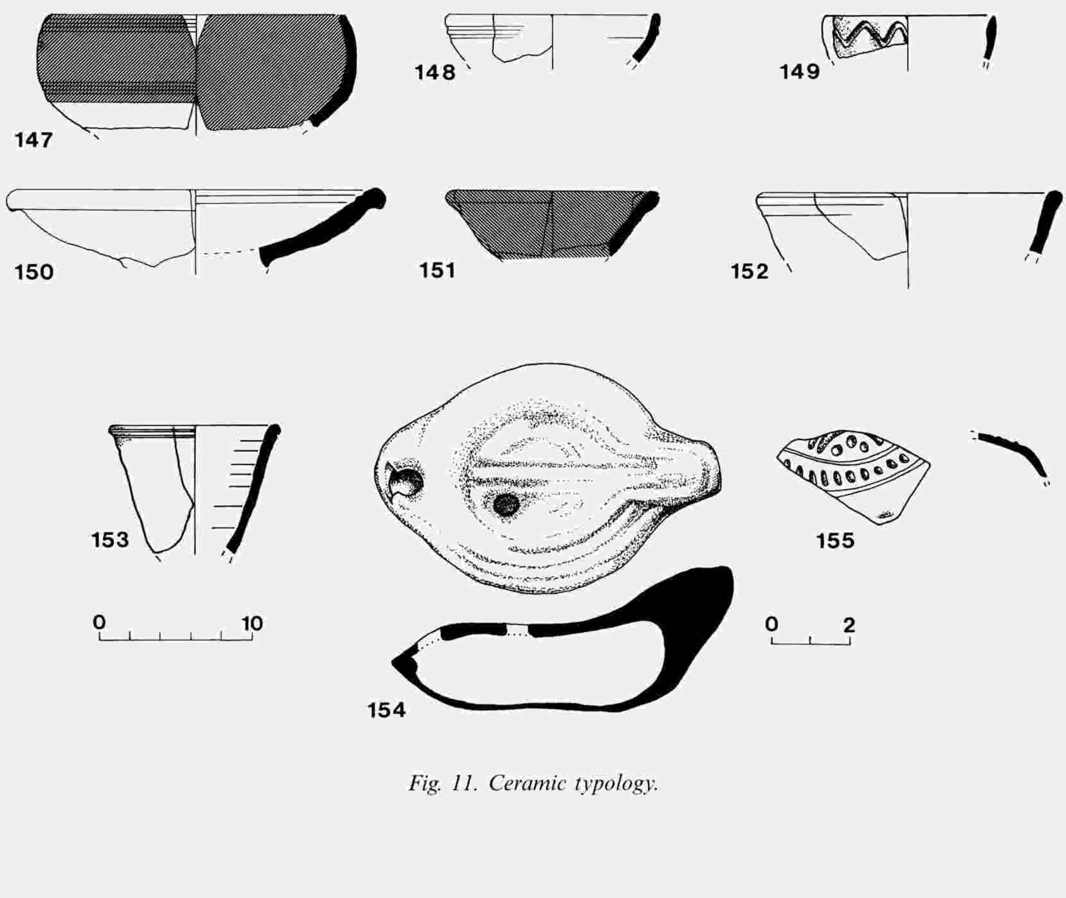


Fig. 11. Ceramic typology.

Lamps

Only one intact lamp was found in the Sinai corpus, which is characteristic of sites in Egypt as well (cf. Esna, Kellia). Small pottery bowls filled with oil and a cloth wick served for illumination rather than lamps. Such bowls are obviously difficult to identify as lamps, unless traces of soot are detectable. Such traces were not found on the Sinai bowls, though this may be due to the use of glass lamps for lighting.

Fig. 11: 154: Intact, faded lamp, with a lug handle. The disc is surrounded by a low ridge and bears traces of decoration – a horizontal line which may represent the arm of a cross; only faint remains of the transversal arm of the cross can be discerned. Near the discus center is a small filling hole; the nozzle is small as well.

This lamp is similar to one described by Rosenthal and Sivan (1978: 55, No. 221) in the category of 'miscellaneous groups'. The latter bears the monogram *ro*, and is better preserved than the Sinai lamp. The parallels cited are from Egypt, dating from the late third to the first half of the fourth century CE.

Similar lamps were found at Qasrawet with a cross in relief (*NEAEHL* 4: 1218). Numismatic and other finds date this site to the fourth century CE, abandoned at the end of that century.

Fig. 11: 155: Fragment of a discus surrounded by punctured dots between two grooved lines. Three additional punctures remain near the center of the discus, as well as what may be the edges of cross arms.

Pipes

Fig. 12: 156: Wide pipe joint with rounded rim, medium-sized neck and carinated shoulder. The lower part has a vertical rim with a rounded top.

Fig. 12: 157: Pipe joint with a rounded rim top and a conical body. Traces of white plaster adhere to the walls; sharply ridged inside.

Fig. 12: 158: Very short, exceptionally narrow, pipe joint. The rim was not preserved above the carinated shoulder and the beginning of the neck. The lower part has a rounded rim top; the pipe bears traces of white plaster.

Fig. 12: 159: Short, narrow pipe joint with a rounded rim top and two ridges on the walls; traces of white plaster inside and outside.

Roof Tile

Fig. 12: 160: This fragment represents the only roof tile in the Sinai corpus.

Varia

Fig. 12: 161: Two ribbed store-jar body sherds with three holes. The larger sherd has two holes: the upper hole (diam. 1 cm) was drilled 3 cm from the lower one (diam. 6 mm). The second body sherd also had a hole (diam. 8 mm). These holes were drilled after firing, possibly after the vessel had been broken and the sherds were reused for some other purpose.

Fig. 12: 162: Bowl base of Late Roman Red ware, with three holes drilled after firing (each 5 mm in diam.). The body sherd was worked on all sides and was probably used for some different function, perhaps as a small strainer.

Summary

The pottery presented in this typological report was found in excavations or collected during surveys, and does not represent a coherent assemblage. The nature of this material makes it difficult to determine secure dating. The relatively limited information that can be gleaned concerning the source of the pottery serves to shed light on the nature of the relations among the inhabitants of Sinai in the Byzantine period, as well as their ties with external factors and their local modes of pottery production. Some data may be inferred concerning the daily lives of the inhabitants based on vessels such as the water-drawing jugs, the amphorae used in wine production, and the large bowls perhaps related to ecclesiastic incense burning.

The Pottery Sources

The pottery presented in this report originated from Egypt, Palestine, North Africa, Asia Minor and Cyprus. Most of the vessels came from Egypt and Palestine, or were locally produced. (The corpus presented above does not include all the pottery defined as 'varia', as its origin is unclear; pottery which may be typed but whose origin is uncertain, was omitted as well.)

The finest and most unique vessels in the corpus came from Egypt.

Vessels of Egyptian Origin: Storage jar No. 3; amphorae Nos. 20–22, 25–27; cooking pot No. 47; decorated jugs

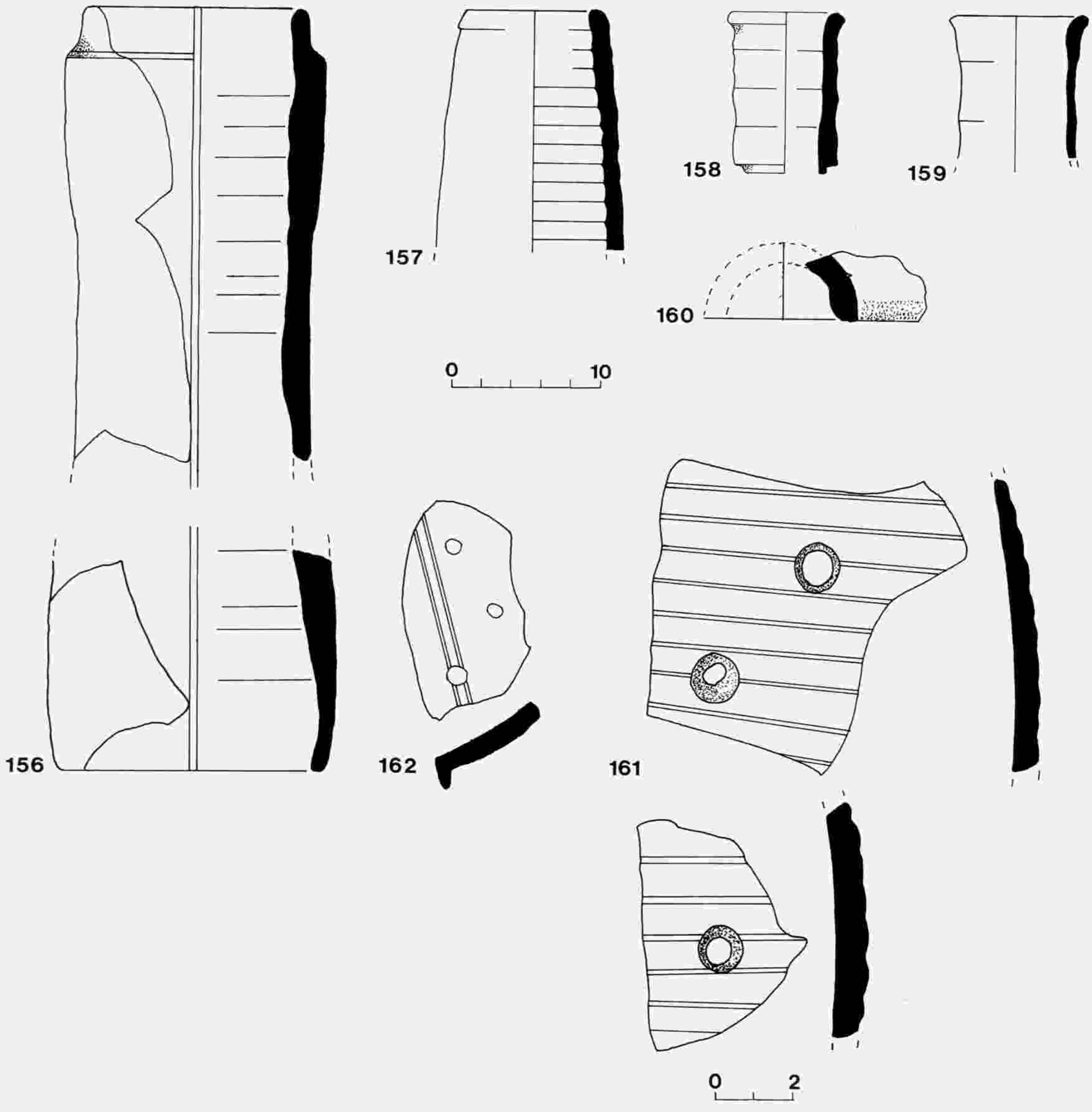


Fig. 12. Ceramic typology.

Nos. 67, 68; large decorated bowls Nos. 115–123; ERS bowls Nos. 134–143; lamp No. 154.

Vessels of Palestinian Origin. Gaza-type storage jar No. 4; storage jar No. 5 (Jerusalem region); storage jars Nos. 6–9; closed cooking pot No. 41 (Jerusalem region); closed cooking pots Nos. 42, 43; cooking pot No. 45; jug No. 71 (Jerusalem region); juglet No. 88 (Jerusalem region); bowl No. 149 (Jerusalem region); cup No. 153 (Jerusalem region).

Vessels of North African Origin: Bowls Nos. 124–130.

Vessels of Asia Minor Origin: Bowls Nos. 131,132.

Vessels of Cypriot Origin: Bowl No. 133.

Vessels Presumably Produced in Sinai: Generalizing the form and type of the locally-produced vessels is difficult as no parallels have been found. Storage jars Nos. 1, 2; small jar No. 16; amphorae Nos. 28–30; cooking pot No. 44; yellow-ware jugs Nos. 81–87; juglets Nos. 89, 90; water jugs Nos. 93–96; kraters Nos. 97–110; bowl No. 150.

Though this corpus does not contain a wide variety of types or many special vessels, it does include a considerable number of imports together with the locally-produced wares. The location of Sinai as an intermediate zone between Palestine and Egypt naturally led to the import of goods from both these countries.

Table 1. The Chronological Range of the Sinai Pottery Vessels with Securely Dated Parallels

Fig. No.	Type	3rd	4th	5th	6th	7th	8th
				century CE			
1: 3	Jar			===			
1: 4	Jar			---	===	===	
1: 5	Jar	===	===				
1: 6–8	Jar			===	===	===	
1: 9	Jar				===	===	
1: 18	Lid				===	===	===
1: 19	Lid				===	===	===
2: 20–22	Amphora			===	===	===	
2: 25–27	Amphora				===	===	
3: 41	Cooking pot			===	===	===	===
3: 42, 43	Cooking pot				===	===	
3: 45	Cooking pot	===					
3: 47	Cooking pot						===
4: 52–56	Cooking pot				===	===	===
5: 63–65	Jug				===	===	
5: 67, 68	Jug	---	--- ===	===	===	===	===
5: 71	Jug				===	===	===
5: 88	Juglet				===	===	===
6: 96	Water jug					===	===
9: 115	Bowl					===	===
9: 122	Bowl				===	===	===
9: 123	Bowl			===			
10: 124, 125	Bowls					===	
10: 126	Bowl				===	===	
10: 127	Bowl			===			
10: 129	Bowl				===		
10: 131	Bowl				===		
10: 132	Bowl					===	
10: 133	Bowl					===	===
10: 134–136	Bowls					===	===
10: 137	Bow				===	===	===
10: 138	Bowl				===		
10: 140	Bowl				===	===	===
10: 141	Bowl				===	===	===
10: 142	Bowl			===	===	===	
11: 148	Bowl				===	===	===
11: 149	Bowl				===	===	===
11: 150	Bowl				===	===	
11: 153	Cup					===	===
11: 154	Lamp		===				

= = = Very common; --- Present but not common.

Chronology

The dating of such a corpus of material is difficult as it originates from excavations, many of which did not yield any categorical stratigraphy, as well as from surveys of widely dispersed sites. However, Table 1 attempts to summarize the chronology of the corpus.

Summary. Most of the datable pottery should be ascribed to the sixth–seventh centuries CE, with a minority to as early as the fifth, continuing into the sixth century CE. A small number of vessels were common only in the fifth century CE and did not continue to be produced. Some isolated vessels appear in the third century and continued to be manufactured only until

the fourth century CE; a few of the vessels continued into the eighth century CE.

Thus, the results of this chronological assessment of the Sinai pottery indicate that the few vessels that date from the third–fourth century CE may represent the beginning of this settlement, whereas its peak occurred in the sixth–seventh centuries CE.

Daily Life as Reflected in the Ceramic Corpus
The ceramic repertoire includes a majority of household vessels known from this period and used on a daily basis (aside from the absence of lamps mentioned above). Together with the kitchen ware, such as storage jars, cooking pots, jugs, kraters, bowls, etc., the corpus also includes imported amphorae. These were used to export wine into Sinai, probably from Egypt and Palestine (wine from Gaza was imported in Gaza-type jars, Fig. 1: 4). After the original contents were emptied, these amphorae were probably used to store local wine or water. The amphorae, which are considered to be local (Fig. 2: 28–30), were probably used in the local wine industry, as evidenced by the holes in the neck and shoulder of amphora No. 28.

Several sites (Jibal, Sufsafa, Eṭ-Ṭur) yielded water jugs, indicating the method of water collecting at these sites.

Some of the imported vessels, such as the large decorated bowls and the Late Roman wares, may have been used in churches rather than in daily domestic life. This conclusion is based on the small number of such vessels found and the provenience of many of them from monasteries and churches. Additional evidence is provided by the large bowl No. 115, which bears traces of soot on its exterior, perhaps as a result of incense burning in the course of church liturgy.

A relatively large number of vessels bear repair holes, an indication of the poverty of the local population: even the simplest vessel was valuable and worth repairing.

(The drawings are by Ronald Greenberg and Diana Elba. Special thanks are due to Sarit Oked.)

Pottery According to Sites

The following report includes a description of the pottery recovered in excavations and collected in surveys throughout Sinai, presented according to sites. Since in most cases this pottery has been discussed in the typological report, the type designations are retained here, and bibliographic references are not repeated.

The typological report includes a description of the main bulk of the corpus. Additional sherds, represented only in this section, are not described individually, but their presence is noted in the general text.

Excavated Sites

ʿEin Najila (Site 52; Fig. 13). Though a relatively large quantity of pottery was found at ʿEin Najila, very little is chronologically conclusive. The few datable sherds provide a general chronological framework from the fifth century to the seventh century CE, with the majority dating from the sixth–seventh centuries. The sherds probably represent the final occupation of the site rather than its foundation.

Most of the vessels are local with a few imports from Egypt (an amphora, a jar, bowl bases – Fig. 13: 2, 4, 18, 19 respectively) or from Palestine (closed cooking pot – Fig. 13: 5, and perhaps open cooking pots – Fig. 13: 6–8). The assemblage is mainly composed of simple vessels, and lacks luxury wares; very few vessels are attributable to the Late Roman Red wares – merely three bowls – two ERS A, and one base in secondary use.

Shaqif Ed-Deir (Site 58; Fig. 14). The few sherds found at this site include two amphora rims (one doubtful) and several cooking pots, as well as two imported bowls (Fig. 14: 7, 8) and a local imitation of an imported bowl (Fig. 14: 10).

The date ranges from the fifth to the seventh century CE, leaning more to the seventh century CE (based on the imported bowls and their imitation). This date reflects the final occupation of the site.

Deir Abu Mghar (Site 40; Fig. 15). Most of the pottery found at this site was imported, e.g. the Gaza storage jar, amphora, cooking-pot lid, Coptic jug and LRC bowl. The date of the finds begins as early as the fifth century CE, but the main period of use is the sixth–seventh centuries CE (based mainly on the LRC bowl No.8).

Deir Antush (Site 54; Fig. 16). The few pottery vessels recovered at this site are of the simplest kind, lacking all imports. The material can be dated generally to the Byzantine period without a more specific date, as the only parallels found are of two undefined vessels (Fig. 16: 2, 3).

Wadi Fraʿiya (Site 60; Fig. 17). The storage jar is probably a local product, while the cooking pot and lid may perhaps be of Palestinian origin, or were locally produced as imitations of the latter. The strainer jug is of undefined origin (Palestinian?). The ERS A bowl was undoubtedly imported from Upper Egypt.

The dates provided by the pottery are the sixth–seventh centuries CE, e.g. the strainer jug and the ERS A bowl; the open cooking pot and lid have a range as late as the ninth century CE. The sixth–seventh century CE date represents the final phase of occupation of the site.

Wadi Jibal (Site 49; Figs. 18, 19). The large assemblage from Jibal includes a wide variety of types:

Local storage jars and amphorae imported from Cyprus or Antioch, closed and open cooking pots from Palestine, and a single cooking pot (Fig. 18: 11) produced in Egypt(?). One jug was made in Palestine (Fig. 19: 19), while several others appear Egyptian; one jug was probably local (Fig. 19: 21). The assemblage also includes local kraters and two bowls imported from North Africa. Thus, while the site does have imported vessels, there are few Late Roman Red Ware bowls, and a small number of imported amphorae, both considered to be expensive wares.

The many water jugs found at the site indicate the existence of numerous wells. Most of the vessels date from the sixth–seventh century CE; some date from the fifth century CE (such as amphora Type 1 which is dated to the early fifth century; closed cooking pot Type 1, which begins to appear at that time; and the Egyptian jugs which probably also begin to be produced in the fifth century CE). However, these examples are not conclusive enough to lower the date definitely. Therefore, the pottery dates the final phase of occupation at the site, which began probably in the mid-seventh century CE (dated securely by ARS bowl, Fig. 19: 36).

Sigilliya (Site 65; Figs. 20, 21). The relative lack of imported vessels at Sigilliya makes it difficult to evaluate the assemblage. Those vessels which can be deemed imports are a jar, imported from Palestine; and a jug and three bowls, imported from Egypt (Figs. 20: 2, 10; 21: 20, 22 respectively). All the other vessels appear to be local products (including two amphorae, Fig. 20: 4, 5, a jar, Fig. 20, and the group of yellow-ware jugs, Fig. 20: Nos. 14–17.

This pattern may be due to the presence of a nearby pottery workshop (not identified), which produced sufficient pottery to fulfill the daily needs of the monks in the Sigilliya region, as well as to supply their wine industry. Obviously, imports would be more costly, a factor which must have played a role in the choice of vessels. The few imports found were brought from the relatively close Egypt and Palestine, rather than from more remote countries, such as North Africa. Since the majority of the imported vessels discovered at the site came from Egypt, it can be assumed that the principal trade relations were with that country. The overwhelming majority of body sherds at the site belong to storage jars and amphorae, with few cooking pots, jugs and bowls.

The date given here obviously reflects the final use of the site (no diagnostic sherds which could date its construction were found under the floors of the church at Sigilliya). Based on the jar (Fig. 20: 2) and the bowls (Fig. 21: 20–22), a date between the late sixth and the early seventh centuries CE seems reasonable. The site was probably abandoned in the seventh century CE. The latest dated vessels are the Coptic jug (Fig. 20: 10) and the ERS A bowl (Fig. 21: 22), which may be as late as the eighth century CE.

Survey Sites

Sufsafa (Figs. 22–24). The wide variety of vessels recovered at Sufsafa included many types imported from Palestine (jar Type 5A – Fig. 22: 2, 3; closed cooking pot Type 2 – Fig. 22: 19, 20; and vessels of the Fine Byzantine Wares from the vicinity of Jerusalem: jar Type 4 – Fig. 22: 1; closed cooking pot Type 1 – Fig. 22: 15–18; juglet – Fig. 23: 28; jug shoulder Fig. 23: 27; cup Fig. 24: 49). Others were imported from Egypt (amphora Type 6 – Fig. 22: 14; large decorated bowls – Fig. 24: 38–44), while only few came from North Africa (Fig. 24: 45–47); amphorae from Cyprus or Antioch (Fig. 22: 5–11).

The inhabitants of Sufsafa were sufficiently affluent to afford more imported wares than other sites in Sinai, including a relatively large variety of decorated vessels. These were perhaps more expensive, such as the large decorated bowls and the Late Roman Red Ware bowls. The large proportion of imported amphorae probably contained Egyptian wine brought to Sinai.

Several vessels were probably produced in Sinai, though this is not certain (i.e. a jar – Fig. 22: 4, and kraters – Fig. 23: 33, 34).

The chronological range of the assemblage extends from the third–fourth centuries CE (based on a jar – Fig.

22: 1, and an ARS bowl – Fig. 24: 47), continuing into the fifth century CE (jars – Fig. 22: 2, 3; closed cooking pots – Fig. 22: 15–18, which begin as early as the fifth century CE; and an ARS bowl (Fig. 22: 46 from the early part of that century). The majority of the vessels date from the sixth–seventh centuries CE: an ARS bowl (Fig. 24: 45), amphorae (Fig. 22: 5–11), the group of Fine Byzantine Wares (Figs. 23: 27, 28; 24: 49), and the large decorated bowls (Nos. 38–44). Several of the vessels continue into the eighth century CE as well.

Eṭ-Ṭur (Fig. 25). The small quantity of pottery recovered at the site does not permit definitive conclusions. The site yielded a relatively large proportion of footed bases of amphorae, though it is not clear whether the amphorae were local products or imported for their wine content. The only certain imports are two bowls of the Late Roman Red Wares.

The datable vessels range from the sixth–seventh century CE, with a possible continuation into the eighth-ninth centuries CE based on the open cooking pots.

Abu Jiffa (Fig. 26). The relatively small quantity of pottery includes a wide range of special types, particularly the imported bowls. Most of the imported vessels originated in Egypt, i.e. the large decorated bowls (Fig. 26: 8, 9), and the ERS A bowls (Fig. 26: 12, 13). Two bowls (and an additional seven body sherds) were imported from North Africa (Fig. 26: 10, 11). Amphorae were imported from Cyprus or Antioch (Fig. 26: 2).

Some of the vessels date from the fifth, some from the sixth century CE, while others from the seventh and possibly the eighth centuries CE (with the exception of the low date of the late second–early third century CE – of bowl No. 8 at Karanis).

Bir Abu Suweira (Site 72; Fig. 27: 1–5). The few sherds collected at this site were not particularly diagnostic.

The remainder of the surveyed sites yielded only one or two sherds each. They are enumerated in Figs. 27 and 28 and their accompanying tables.

Ceramic Regionality in the Sinai Corpus

The following is an attempt to examine the characteristics of the pottery grouped according to geographic regions throughout Sinai.

The area with the largest number of sites presented in this report (both excavated and surveyed) is the region of Mount Sinai: Sufsafa, Deir Abu Mghar, ʿEin Najila, Jibal, Abu Jiffa, Wadi Eṭ-Ṭlah and Nabi Salah. These sites yielded a relatively large number of finds, including numerous imports, mainly from Egypt but also from Palestine. The imports included bowls from North Africa and isolated imports from Asia Minor and Cyprus.

Predominantly, the pottery at these sites dates from the sixth–seventh century CE. However, the earliest securely dated pottery dates from the fifth century CE, with some forms perhaps even as early as the third–fourth centuries CE.

The region of Jebel Umm Shomer – Wadi Fraʿiya, Shaqif Ed-Deir and Deir Antush – yielded only a few finds which, for the most part, make it difficult to generalize; there were a few imports from Egypt and even fewer from Palestine. The date, based on these finds, ranges from the fifth to the seventh century CE.

The region of Eṭ-Ṭur – Eṭ-Ṭur, Bir Abu Suweira and Wadi Mir – yielded but little pottery, with a minute number of diagnostic sherds, such as bowls and amphorae imported from Egypt. Proposed date: sixth–seventh centuries CE.

The region of Faran – Serbal, Tell Maḥrad and Feiran – had sparse pottery finds, including a bowl from Asia Minor, a lamp from Egypt and an imported bowl of unknown provenience. The lamp dates from the late third–early fourth century CE, while the rest of the material dates from the sixth century CE.

The Sigilliya sites yielded but little imported material (from Egypt and Palestine), together with a wealth of locally–produced vessels. The proposed date is the late sixth seventh centuries CE.

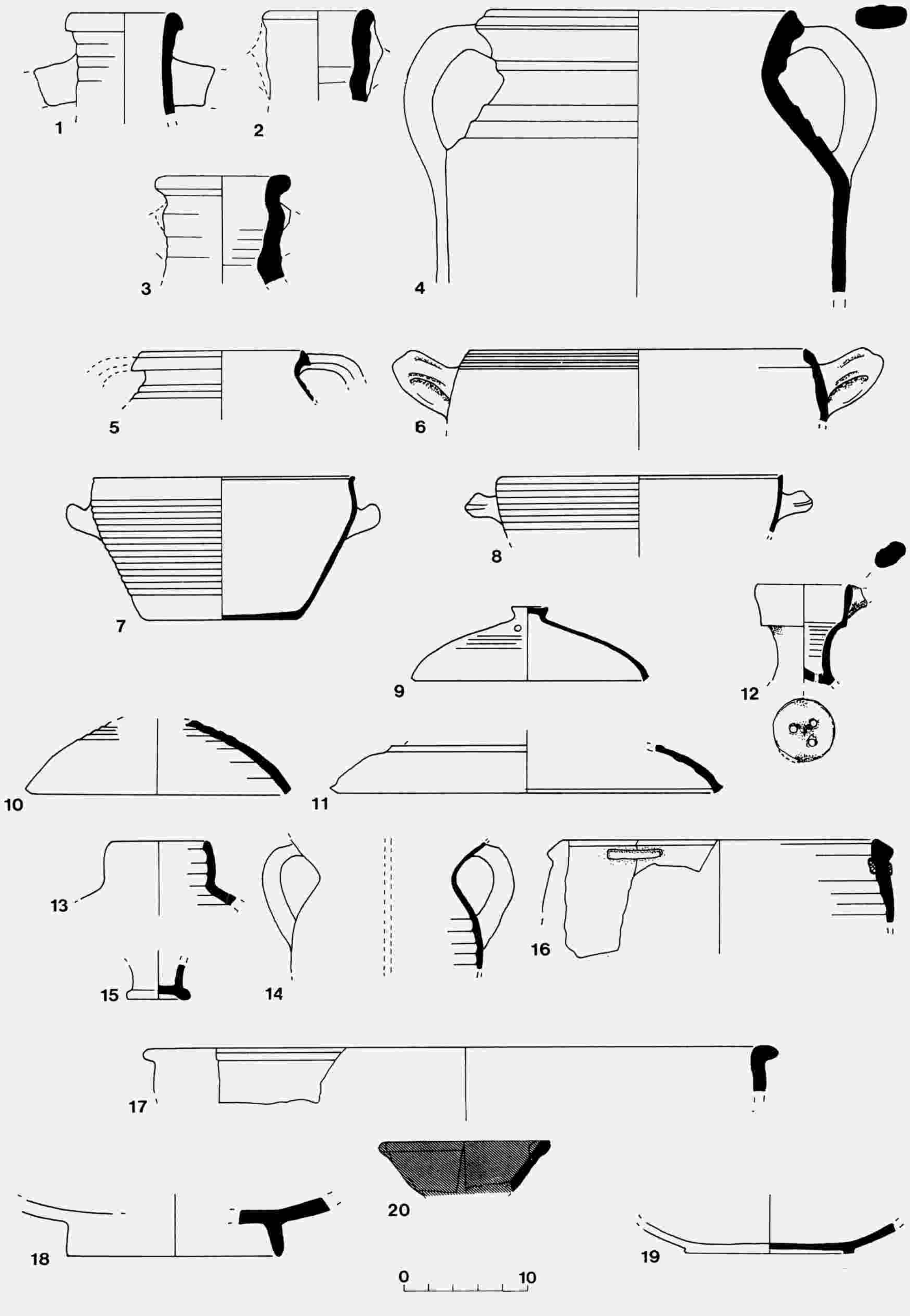


Fig. 13. Pottery – ʿEin Najila.

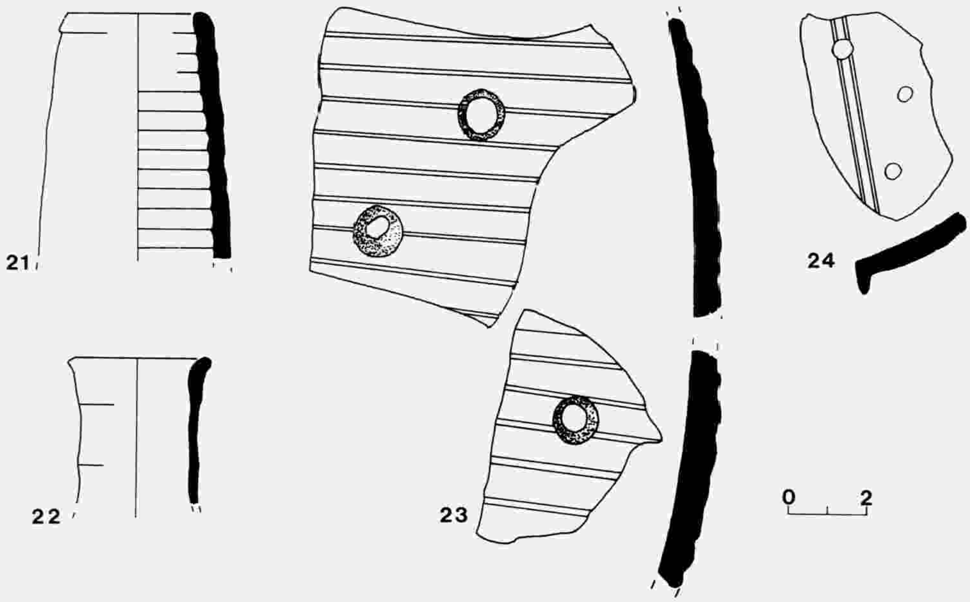


Fig. 13 (continued). 'Ein Najila.

No.	Typological No.	Type	Remarks
1	24	Amphora Type 2	Two similar rims not drawn.
2	26	Amphora Type 3	
3	36	Amphorae – Varia	
		Amphora Type 6	Not drawn.
4	3	Jar Type 2	
5	41	Ccp Type 1	
6		Ocp Type 1B	Coarse brown ware, numerous large white and mica inclusions.
7	56	Ocp Type 2	
8		Ocp Type 2	Brown, few white and mica inclusions.
9	58	Ocp lid Type 1	
10		Ocp lid Type 1	Reddish-brown outside and gray inside, many white inclusions.
11		Ocp lid	Coarse dark brown ware, many large white inclusions.
12	63	Strainer jug	
13	85	Yellow-ware jugs	
14	86	Yellow-ware jugs	
15	77	Jugs – Varia	
16	106	Krater Type 4C	
17	107	Krater Type 5	
18	139	ERS A bowl Type 4	
19	143	ERS bowls – Varia	
20	151	Bowl	
21	157	Pipe	
22	159	Pipe	
23	161	Varia – two jar body sherds	
24	162	Varia – bowl base	

Abbreviations: Open cooking pot – Ocp; Closed cooking pot – Ccp.

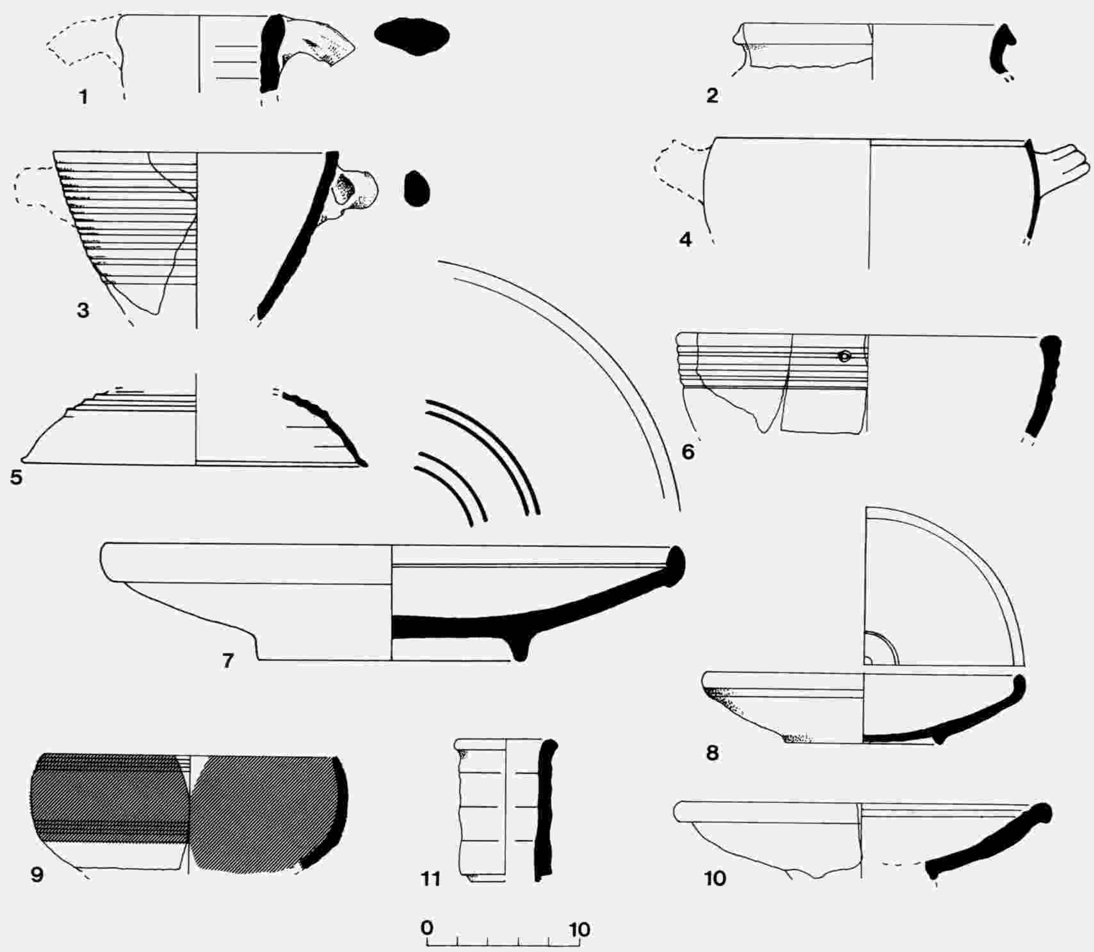


Fig. 14. Pottery – Shaqif Ed-Deir.

No.	Typological No.	Type	Remarks
1	35	Amphorae – Varia	
		Amphora Type 1	One rim, not drawn
2		Ccp Type 1	Reddish-brown ware, mica inclusions. Another rim was not drawn.
3	52	Ocp Type 1A	
4		Ocp Type 1B	Reddish-brown ware outside, gray ware inside, small mica inclusions. Another rim was not drawn.
5		Ocp lid Type 2	Coarse dark brown ware. Two other rims were not drawn.
6	112	Kraters – Varia	
7	134	ERS A bowl Type 1	
8	144	LR – Varia, bowl	
9	147	Bowl	
10	150	Bowl	
11	158	Pipe	
		Water jug Type 2	Rim, not drawn.

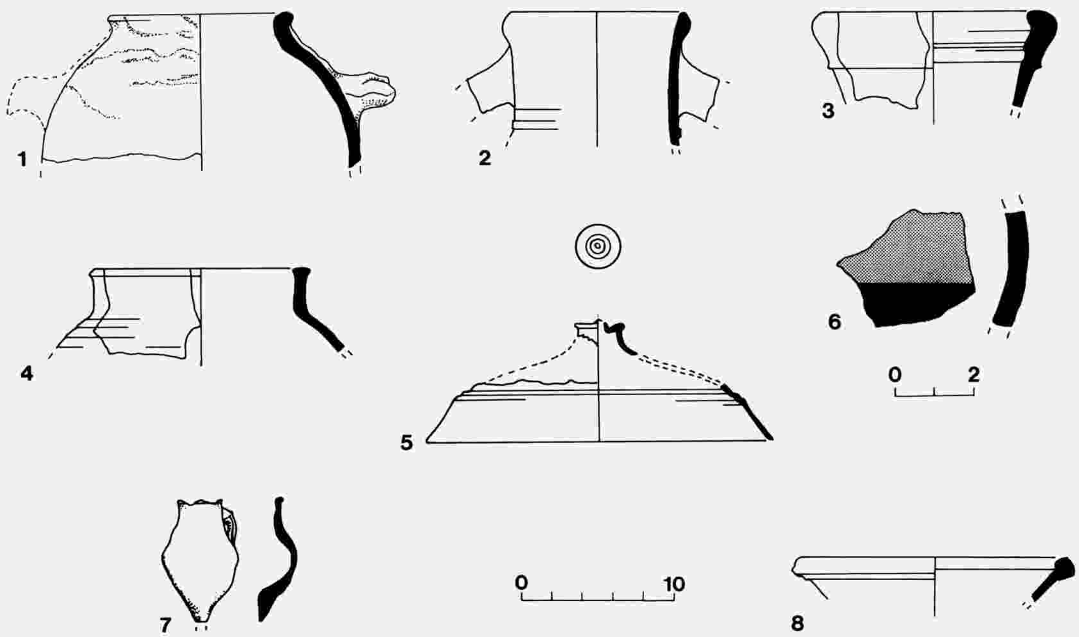


Fig. 15. Pottery – Deir Abu Mghar.

No.	Typological No.	Type	Remarks
1	4	Jar Type 3	
2	25	Amphora Type 3	
3	32	Amphorae – Varia	
4	46	Ccp Type 5	
		Ccp Type 1	Rim, not drawn.
5	59	Ocp lid Type 2	
6	67	Jug	
7	90	Juglet Type 2	
8	132	LRC bowl	

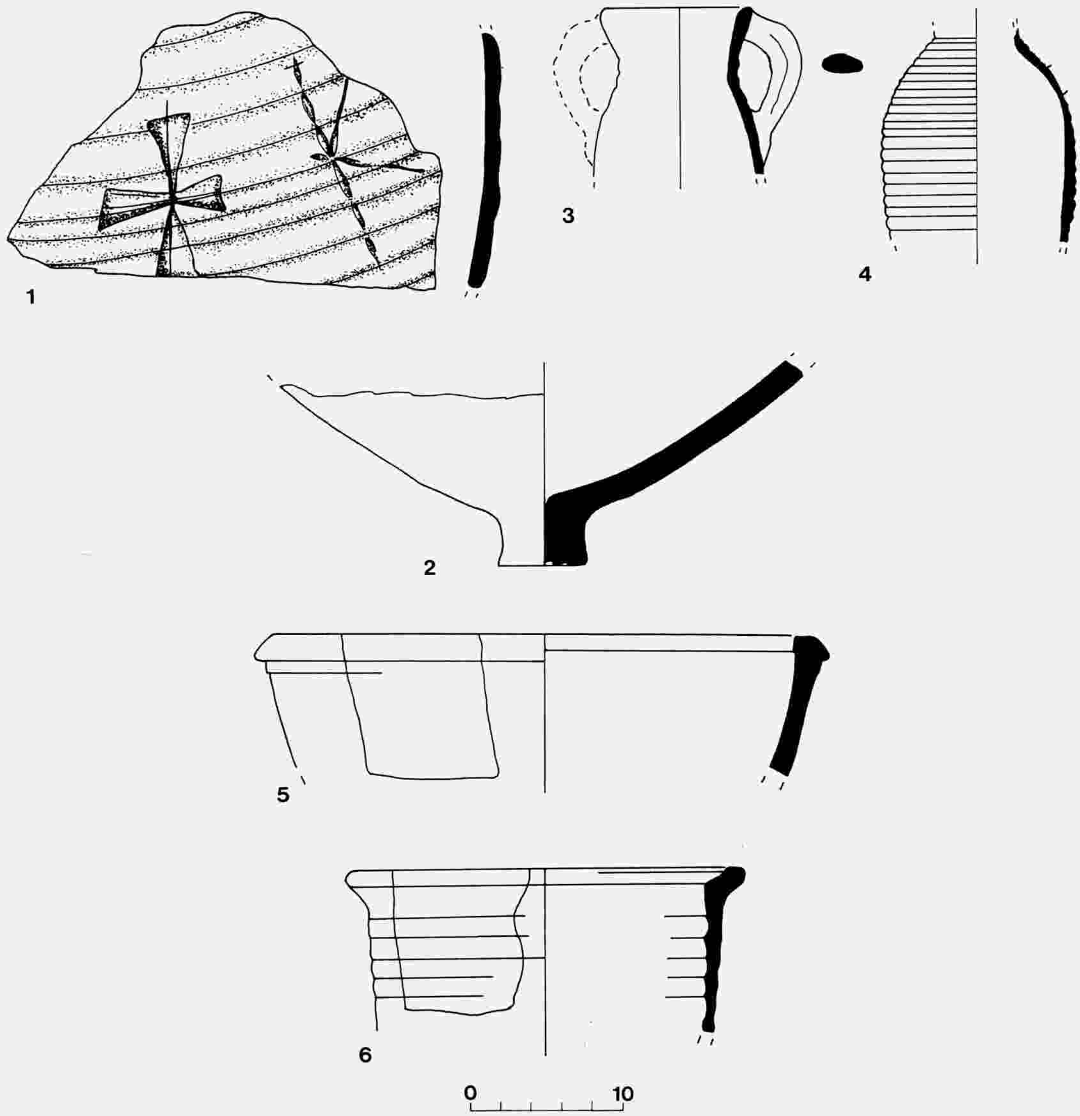


Fig. 16. Pottery – Deir Antush.

No.	Typological No.	Type	Remarks
1	15	Jars – Varia	
2	37	Amphorae – Varia	
3	70	Jugs – Varia	
4	73	Jugs – Varia	
5		Krater Type 4A	Brown ware with few white inclusions. White wash on the outside.
6	111	Kraters – Varia	

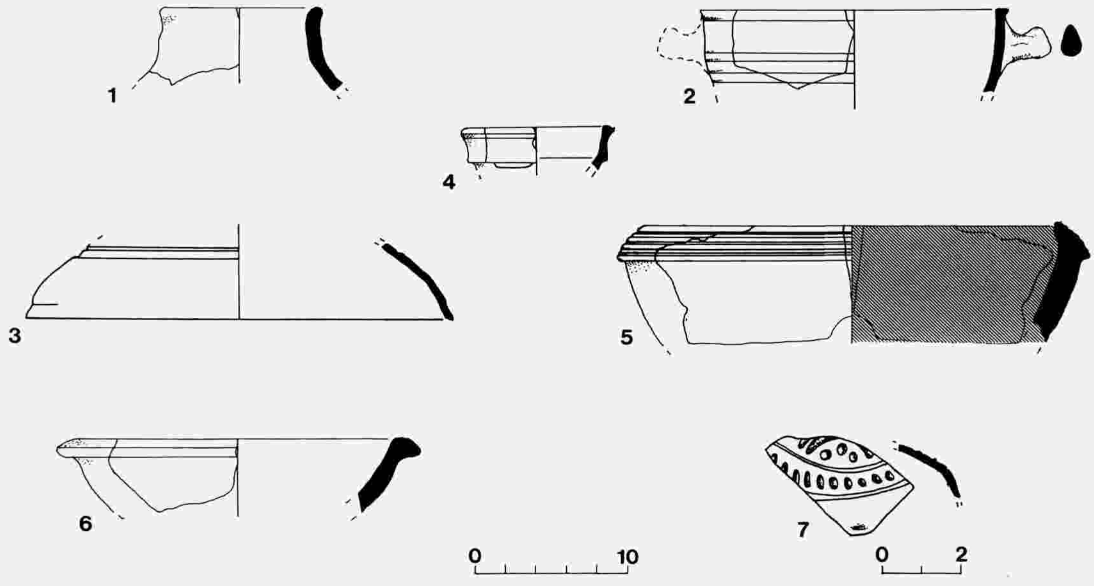


Fig. 17. Pottery – Wadi Fraʿiya.

No.	Typological No.	Type	Remarks
1	14	Storage jars – Varia	
2		Ocp Type 1A	Dark brown ware with many large white inclusions and some mica.
3	60	Ocp lid Type 2	
4	64	Jug Type 1	
5	120	Large decorated bowl Type 3	
6	138	ERS A bowl Type 3	
7	155	Lamp	

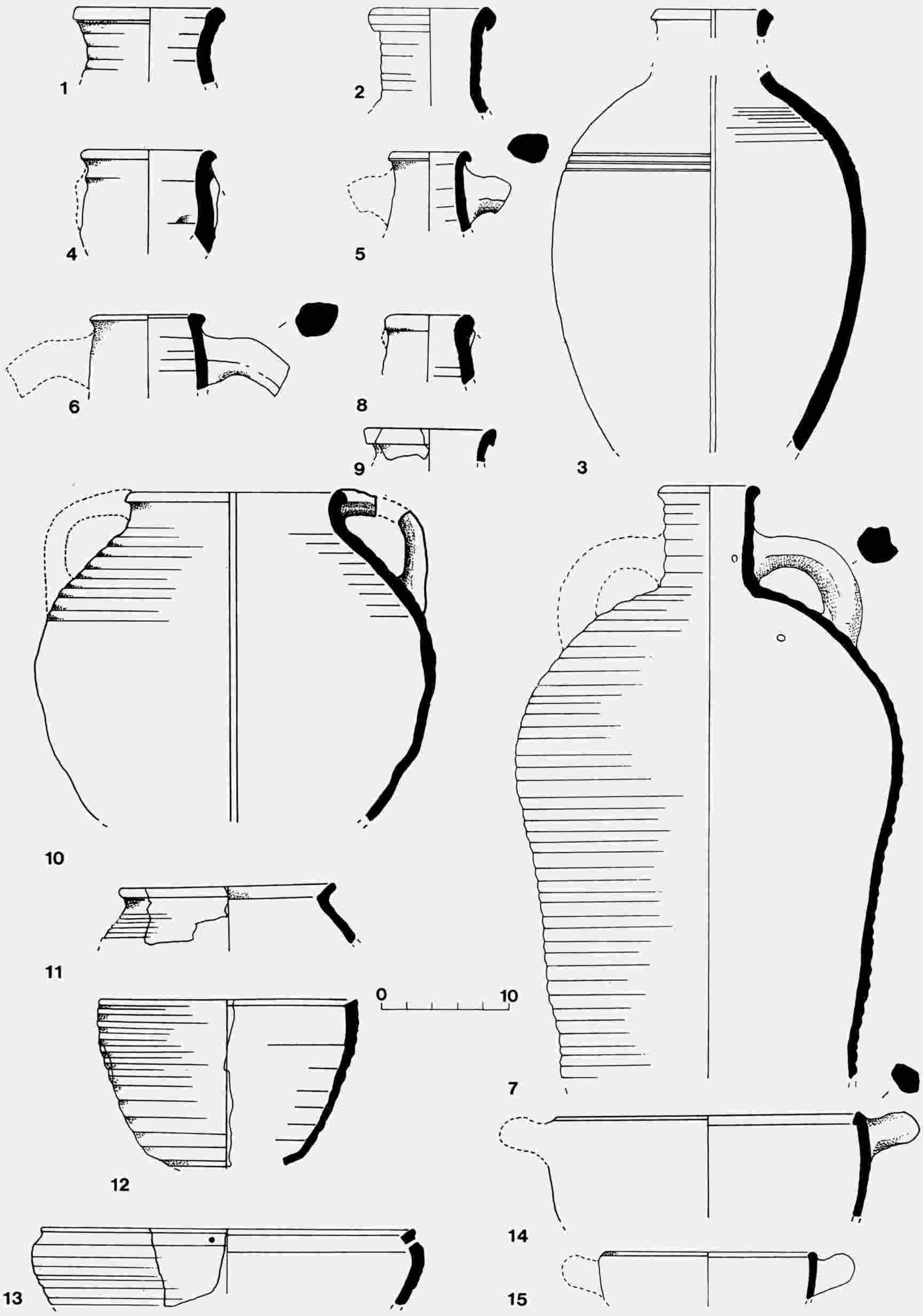


Fig. 18. Pottery – Wadi Jibal.

Figs. 18, 19. Wadi Jibal

No.	Typological No.	Type	Remarks
Fig. 18			
1		Jar Type 1A	Greenish ware outside, light brown ware inside, some mica.
2	2	Jar Type 1B	
3	16	Small jar	
4	22	Amphora Type 1	
5	23	Amphora Type 2	
6		Amphora Type 2	Greenish ware with some mica.
7	28	Amphora Type 4	
8	34	Amphorae – Varia	
9		Ccp Type 1	Reddish-brown ware, small white and mica inclusions.
10	42	Ccp Type 2	
11	47	Ccp Type 6	
12	50	Ocp Type 1A	
13		Ocp Type 1A	Gray ware inside, coarse brown ware outside, with many large white inclusions.
14	54	Ocp Type 1B	
15	55	Ocp Type 1B	
Fig. 19			
16		Ocp lid	Gray ware with brown core, white inclusions and large mica pieces.
17	65	Strainer jug	
18	74	Jugs – Varia	
19	76	Jugs – Varia	
20	78	Jugs – Varia	
21	84	Yellow-ware jug	
22	92	Flask	
23	93	Water jug Type 1	Nine rims, not drawn.
24	94	Water jug Type 1	
25		Water jug Type 1	Coarse light brown ware, white and mica inclusions.
26		Water jug Type 1	Coarse brown ware, large gray and mica inclusions.
27		Water jug Type 1	Coarse brown ware, white, gray and mica inclusions.
28		Water jug Type 1	Light brown ware, small and large white inclusions, some mica.
29		Water jug Type 1	Coarse reddish-brown ware, small white inclusions and some mica.
30		Water jug Type 2	Brown ware, large and small white inclusions.
31		Water jug Type 2	Brown ware, large and small white inclusions.
32		Water jug Type 2	Light gray ware, small white inclusions and some mica.
33	102	Krater Type 4A	
34	105	Krater Type 4C	
35	121	Large decorated bowl Type 3	
36	124	ARS bowl	
37	129	ARS bowl	
38	152	Bowl	

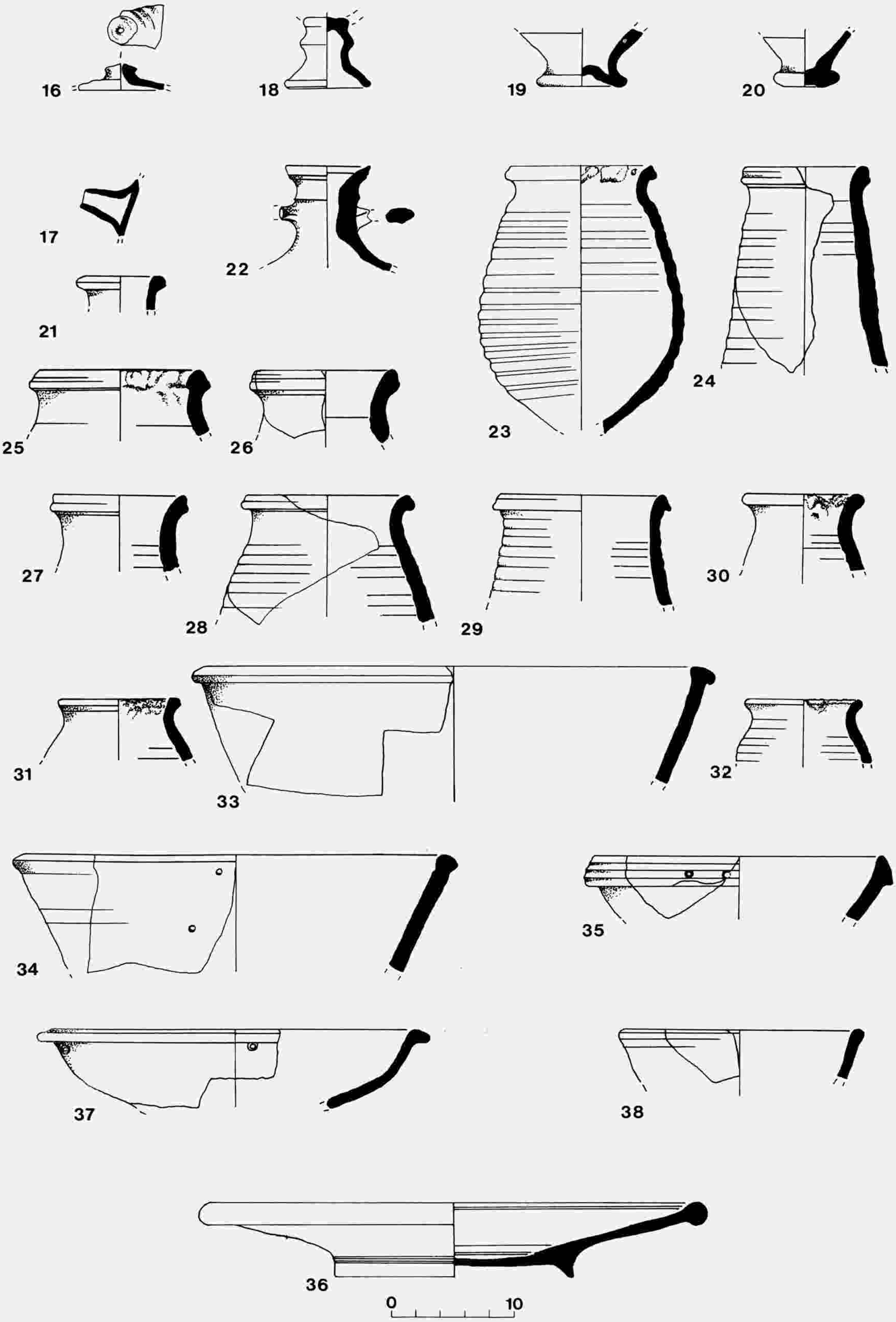


Fig. 19. Pottery – Wadi Jibal.

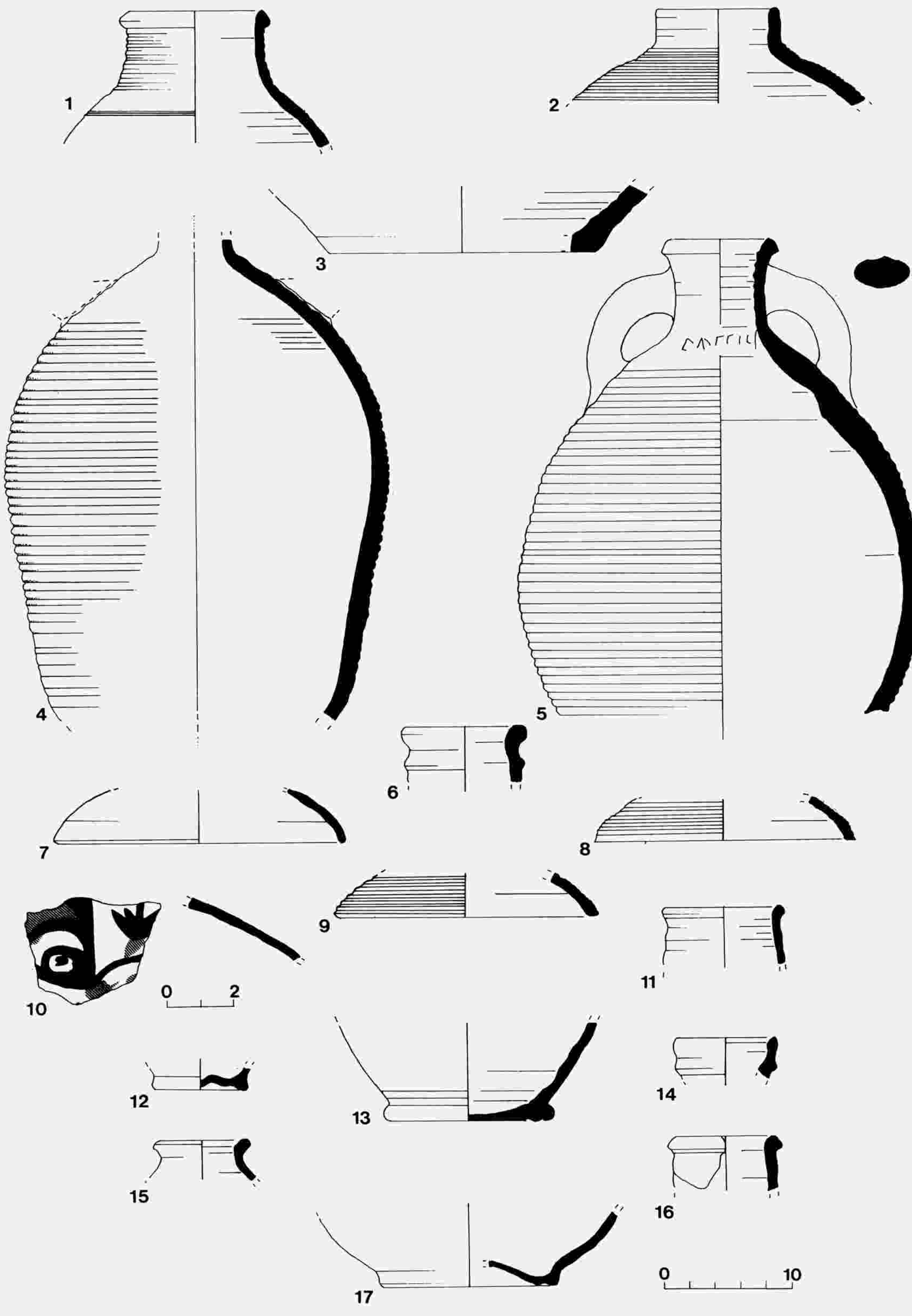


Fig. 20. Pottery – Sigilliya.

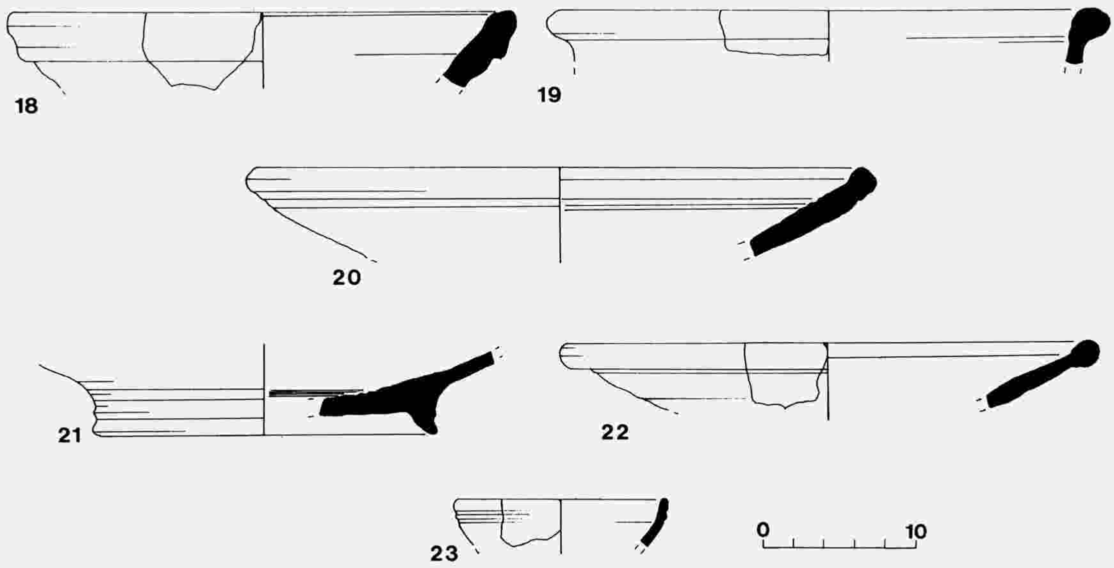


Fig. 21. Pottery – Sigilliya.

Figs. 20, 21. Sigilliya

No.	Typological No.	Type	Remarks
Fig. 20			
1	1	Jar Type 1A	
2	9	Jar Type 5B	
3	13	Jars – Varia	
4	29	Amphora Type 5	
5	30	Amphora Type 5	
6	33	Amphorae – Varia	
7		Ocp lid Type 1	Coarse gray ware, brown core and white mica inclusions.
8		Ocp lid Type 1	Gray ware, brown core, white and mica inclusions.
9		Ocp lid Type 2	Brownish gray ware, mica inclusions.
10	68	Jug Type 2	
11	72	Jugs – Varia	
12	79	Jugs – Varia	
13	80	Jugs – Varia	
14	81	Yellow-ware jug	Many body sherds of this type were not drawn.
15	82	Yellow-ware jug	
16	83	Yellow-ware jug	
17	87	Yellow-ware jug	
Fig. 21			
18	100	Krater Type 2	
19	110	Kraters – Varia	
20	135	ERS A bowl Type 1	
21	136	ERS A bowl Type 1	
22	137	ERS A bowl Type 2	
23	148	Bowl	

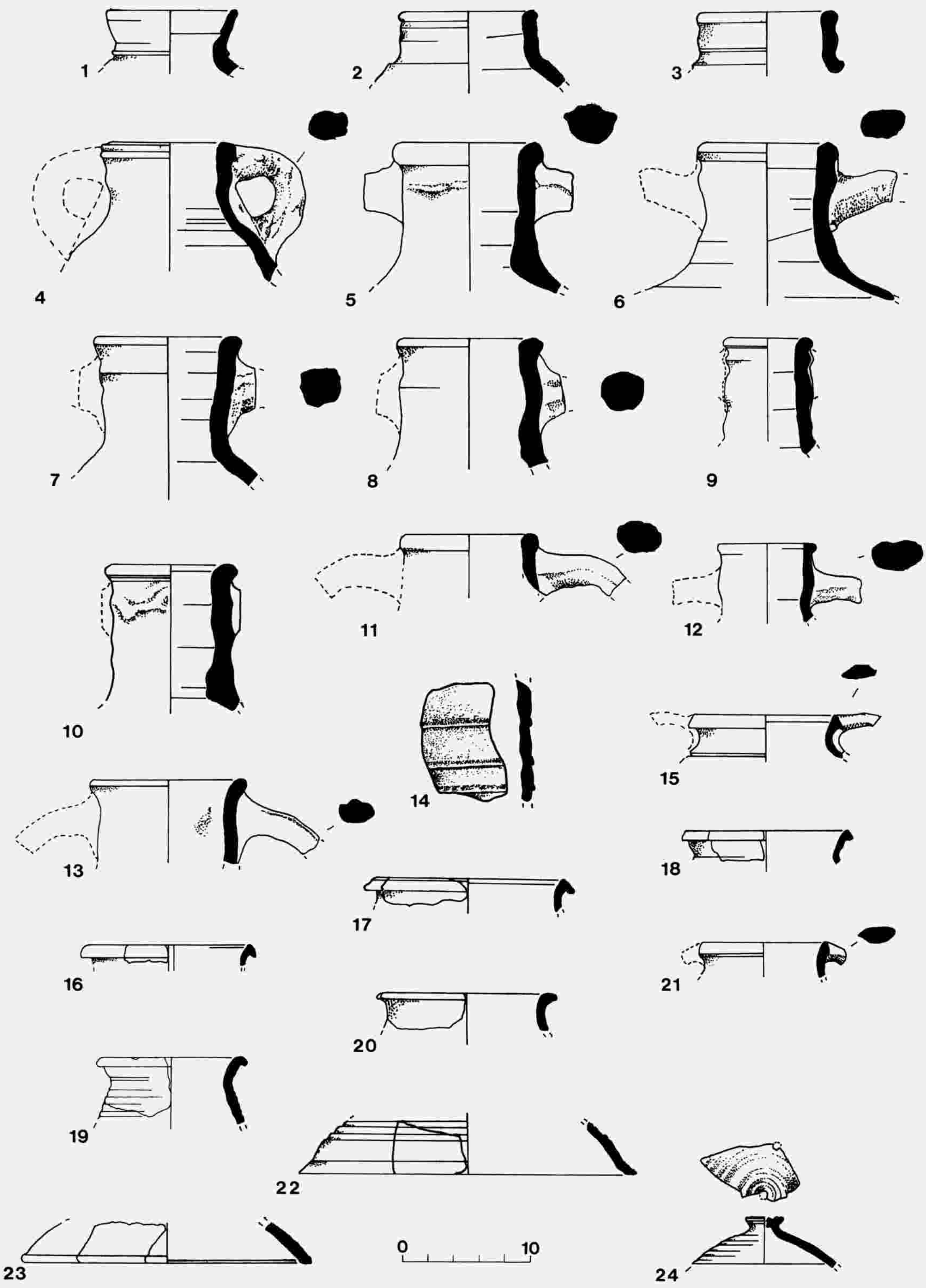


Fig. 22. Pottery – Sufsafa.

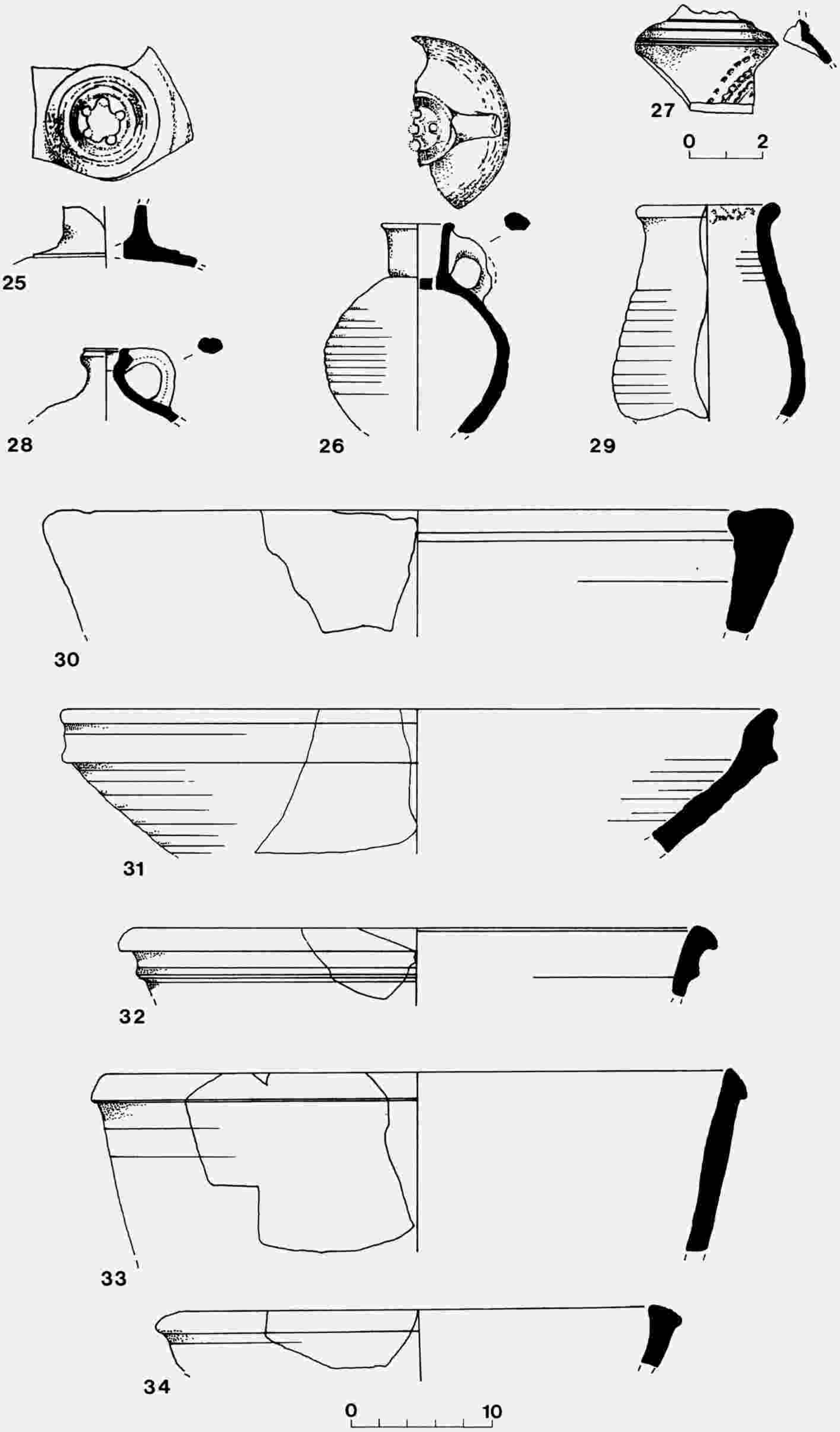


Fig. 23. Pottery – Sufsafa.

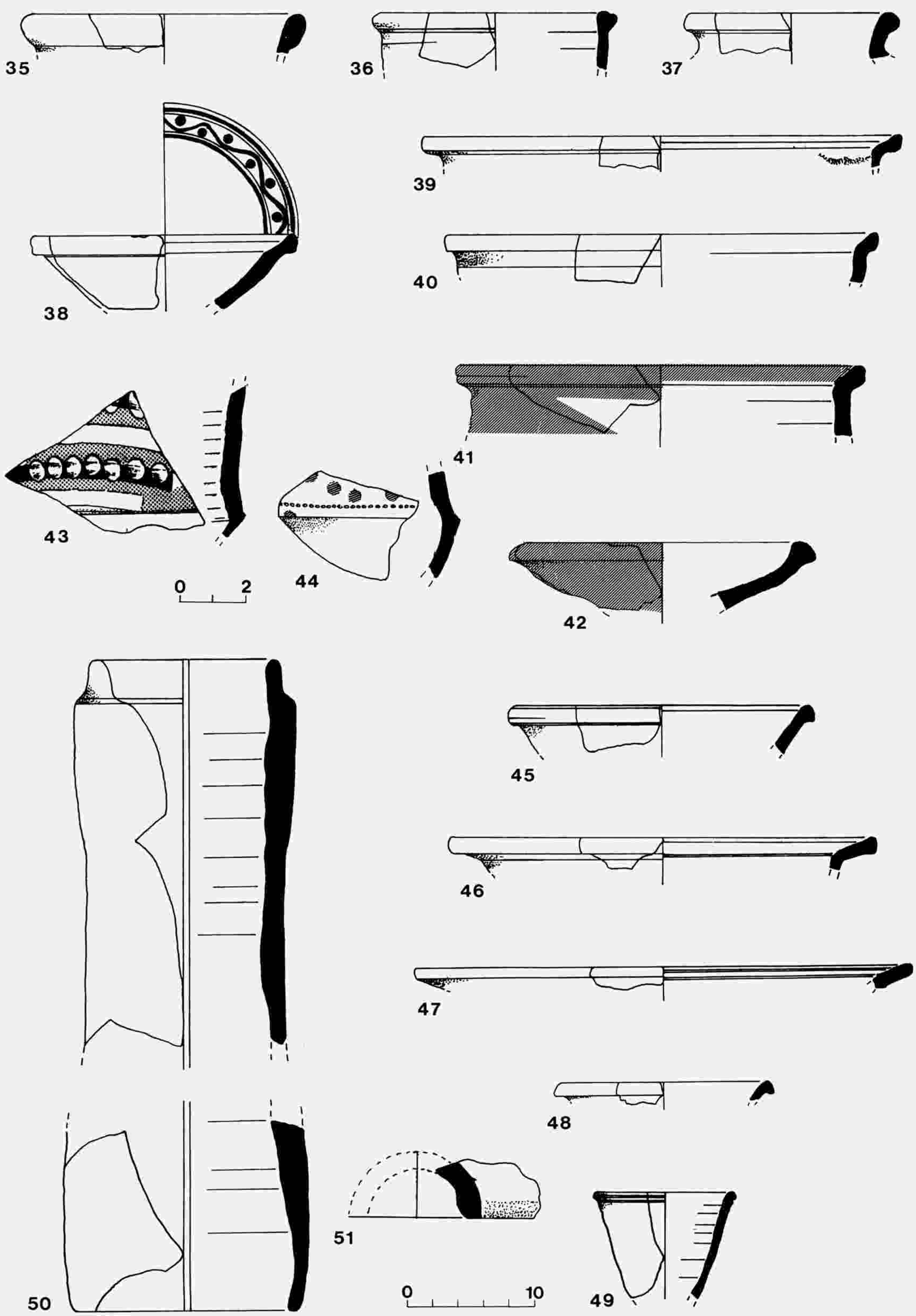


Fig. 24. Pottery – Sufsafa.

Figs. 22–24. Sufsafa

No.	Typological No.	Type	Remarks
Fig. 22			
1	5	Jar Type 4	
2	6	Jar Type 5A	
3	7	Jar Type 5A	
4	12	Jars – Varia	
5	20	Amphora Type 1	
6		Amphora Type 1	Well-levigated light brown ware, few small white and mica inclusions, white wash.
7		Amphora Type 1	Well-levigated brown ware, few large gray grits, brown wash inside and outside.
8		Amphora Type 1	Reddish-brown ware, many black, brown and a few white inclusions. Light gray core. White wash inside and outside.
9		Amphora Type 1	Well-levigated brown ware interspersed with large white inclusions. Brown wash inside and outside.
10		Amphora Type 1	Well-levigated light brown ware, reddish-brown on the outside, covered by white wash.
11		Amphora Type 1	Well-levigated dark brown ware, interspersed with very large gray inclusions. Brown wash outside.
12	27	Amphora Type 3	
13		Amphora Type 3	Brown ware, numerous small black and white inclusions.
14	31	Amphora Type 6	
15		Ccp Type 1	Dark brown ware with few white inclusions, gray slip outside.
16		Ccp Type 1	Dark brown ware with few white inclusions, some mica.
17		Ccp Type 1	Reddish-brown ware, many small mica inclusions.
18		Ccp Type 1	Reddish-brown ware, small mica inclusions.
19		Ccp Type 2	Gray ware, many white inclusions, some mica.
20		Ccp Type 2	Dark brown ware, few small white inclusions, some mica.
21	48	Ccp – Varia	
22		Ocp lid Type 2	Dark brown ware with few gray inclusions and some mica.
23	61	Ocp lid – Varia	
24		Ocp – Varia	Reddish-brown ware, few white inclusions, much mica.
Fig. 23			
25	62	Strainer jug Type 1	
26	66	Strainer jug Type 1	Found at Jebel Musa.
27	71	Jugs – Varia	
28	88	Juglet Type 1	
29	96	Water jug Type 2	
30	97	Krater Type 1	Another rim was not drawn.
31	99	Krater Type 2	
32	101	Krater Type 3	
33		Krater Type 4A	Coarse light brown ware, gray core, white inclusions.
34		Krater Type 4A	Brown ware, tiny white inclusions, much mica.
Fig. 24			
35	104	Krater Type 4B	
36	113	Kraters – Varia	
37	114	Kraters – Varia	
38	115	Large decorated bowl Type 1	
39		Large decorated bowl Type 1	Well-levigated gray ware, gray slip inside and outside.
40		Large decorated bowl Type 1	Brown ware, large white inclusions.
41	118	Large decorated bowl Type 1	
42	119	Large decorated bowl Type 2	
43	122	Large decorated bowl Type 4	
44	123	Large decorated bowl Type 4	

Figs. 22–24 (continued)

No.	Typological No.	Type	Remarks
45	126	ARS bowl	
46	127	ARS bowl	
47	128	ARS bowl	
48	146	LR – Varia	
49	153	Cup	
50	156	Pipe	
51	160	Roof tile	

Fig. 25. Eṭ-Ṭur

No.	Typological No.	Type	Remarks
1	17	Jar lid	
2	18	Jar lid	
3	38	Amphorae – Varia	
4		Amphorae – Varia	Well-levigated yellowish ware, few brown inclusions, much mica.
5	39	Amphorae – Varia	Four additional bases were not drawn.
6		Amphorae – Varia	Brown ware, white inclusions, much mica. White slip inside and outside.
7	40	Amphorae – Varia	
8	44	Ccp Type 3	
9	51	Ocp Type 1A	Another rim was not drawn.
10		Ocp Type 1B	Brownish-gray ware, many white inclustions. One other rim was not drawn.
11	95	Water jug Type 1	
12	103	Krater Type 4A	
13		Krater Type 4A	Coarse pinkish-brown ware, large white and gray inclusions.
14	133	CRS bowl	
15	142	ERS A Type	

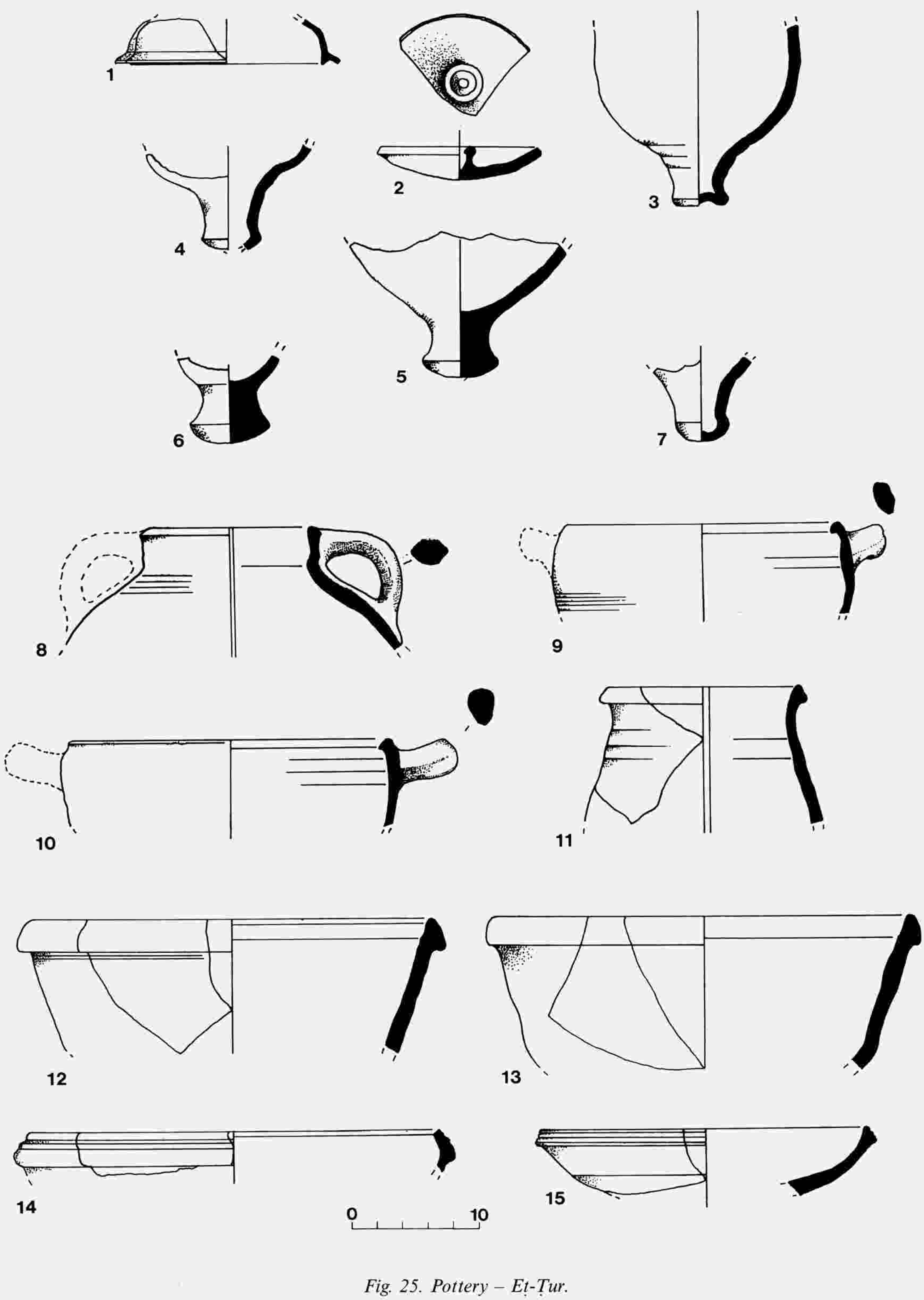


Fig. 25. Pottery – Eṭ-Ṭur.

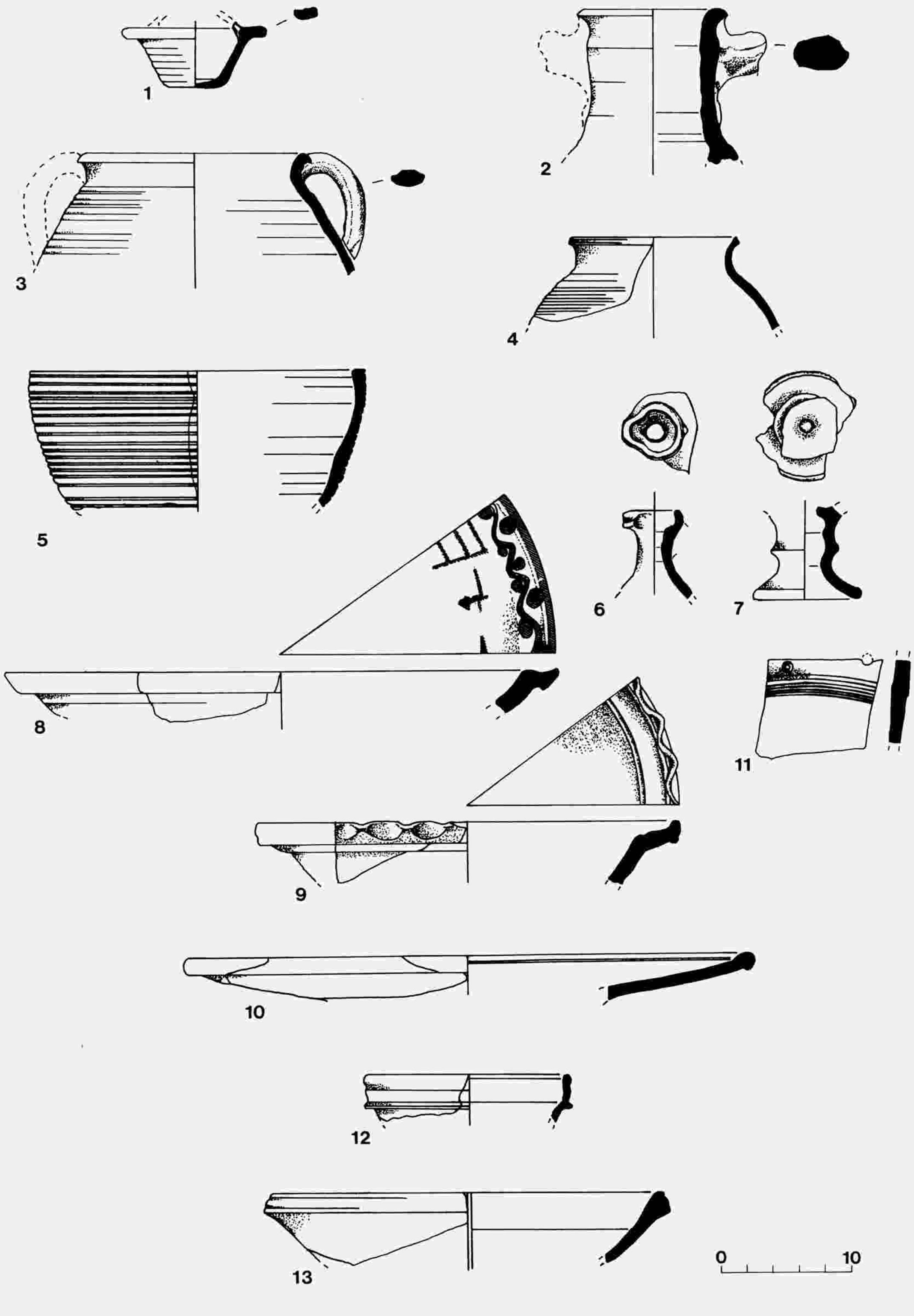


Fig. 26. Pottery – Abu Jiffa.

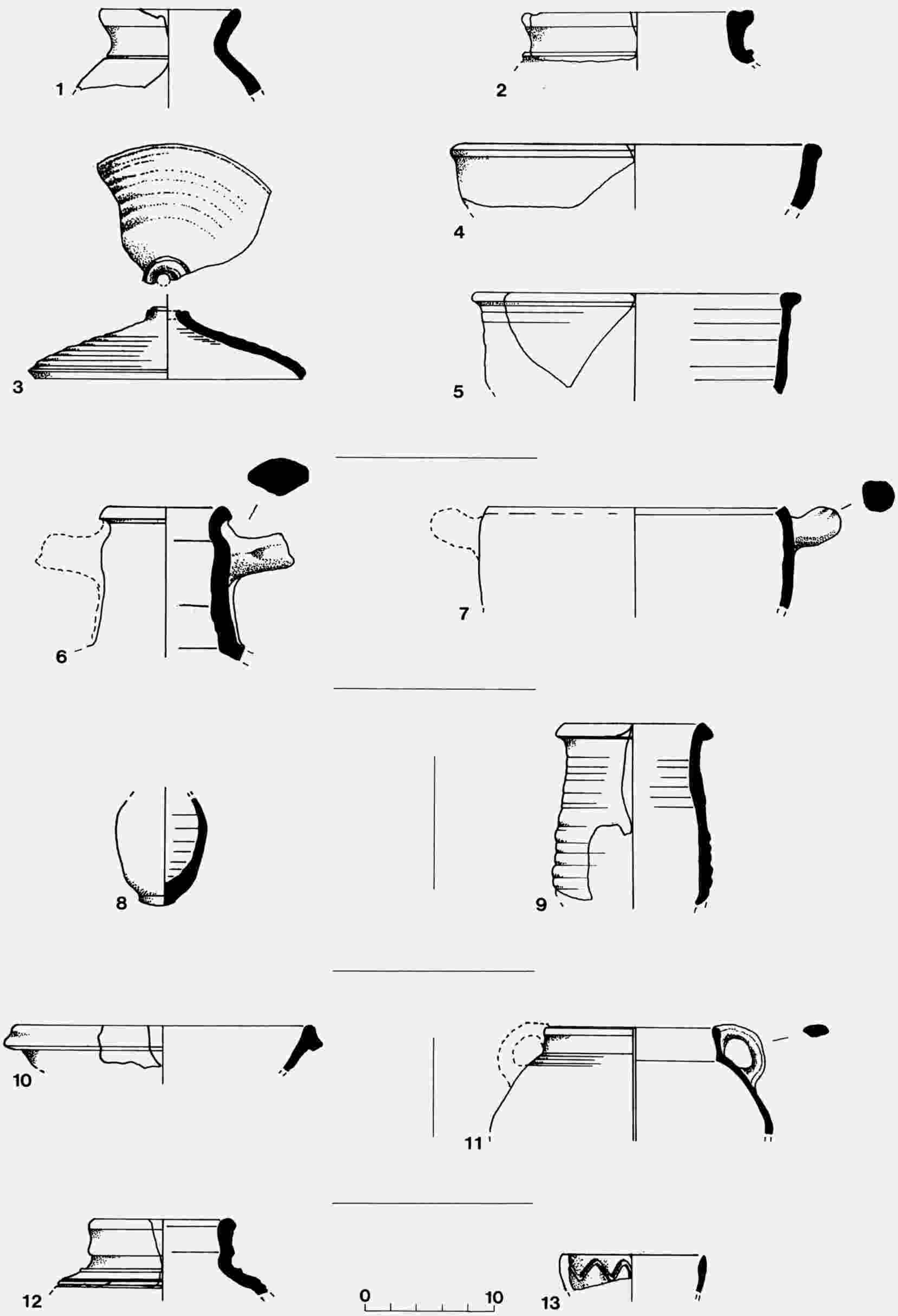


Fig. 27. Pottery – various sites.

Fig. 26. Abu Jiffa

No.	Typological No.	Type	Remarks
1	19	Jar stopper	
2	21	Amphora Type 1	
3	43	Ccp Type 2	
4		Ccp Type 2	Gray ware, many small white inclusions and some mica.
5		Ocp Type 1A	Dark brown ware, many white inclusions.
6	69	Trefoil-rim jug	
7	75	Jugs – Varia	
8	116	Large decorated bowl Type 1	
9	117	Large decorated bowl Type 1	
10	125	ARS bowl	Seven bowl sherds were not drawn.
11	130	ARS bowls – Varia	
12	140	ERS A bowl Type 5	
13	141	ERS A bowl Type 6	

Fig. 27. Pottery – Various Sites

	No.	Typological No.	Type	Remarks
Bir Abu Suweira	1	10	Jars – Varia	
	2	11	Jars – Varia	
	3	57	Ocp lid Type 1	
			Ocp lid Type 2	Rim, not drawn
	4	108	Krater Type 5	
	5	109	Krater Type 5	
Wadi Mir	6		Amphora Type 1	Well-levigated brown ware with many tiny black inclusions and some mica.
	7	53	Ocp Type 1B	
Wadi Gharandal	8	91	Juglets – Varia	
Convent of the Apostles	9		Water jug Type 1	Coarse brown ware, white gray and mica inclusions.
Serbal	10	131	LRC bowl	
Wadi Murah	11	45	Ccp Type 4	
Wadi eṭ-Ṭlah	12	8	Jar Type 5A	
	13	149	Bowl	

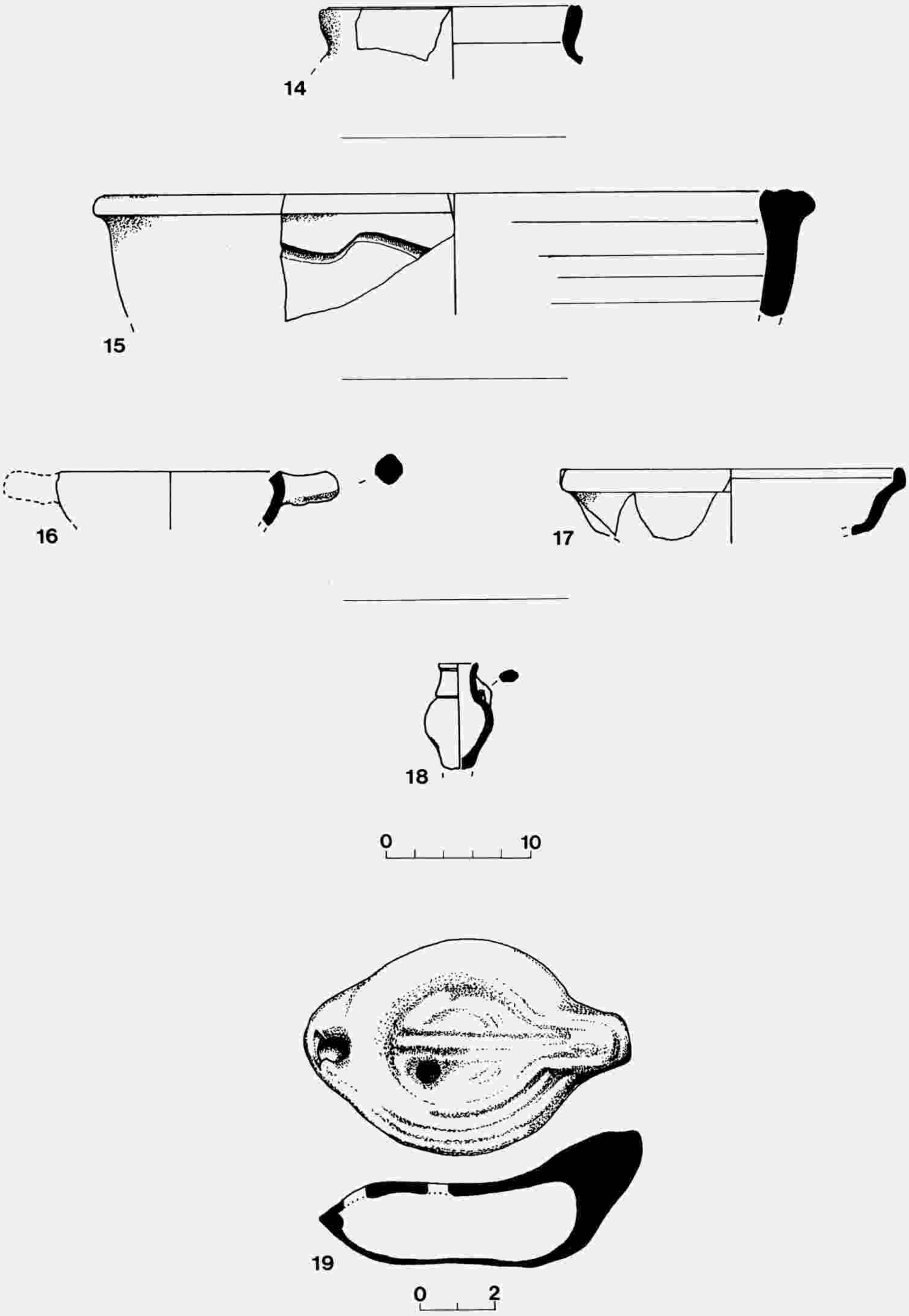


Fig. 28. Pottery – various sites.

Fig. 28. Pottery – Various Sites

Nabi Salah	14	49	Ccp – Varia	
Wadi Abu Ṭuwweita	15	98	Large krater	
Tell Maḥrad (Site 68)	16		Ocp Type 1B	Coarse greenish-brown ware, many large white inclusions.
	17	145	LR bowls – Varia	
Feiran	18	89	Juglet Type 2	
	19	154	Lamp	

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Appendix 2

Glass from Monasteries and Chapels in South Sinai

Yael Gorin-Rosen

The glass finds presented in this report were recovered during excavations and surveys conducted by U. Dahari in chapels and monasteries in South Sinai.[1] These artifacts – vessels and windowpanes – of varying provenance, were found very poorly preserved. The majority were covered by a thick weathering layer and were characterized by severe pitting, which had eaten through the walls of the vessels, so that most of the fragments were unidentifiable. The glass finds are discussed as a group, since they are homogeneous in form and in their state of preservation.

The vessels included here are the only vessels which could be reconstructed and identified. They constitute the basic repertoire of chapels and monasteries, and present a limited variety of forms, consisting chiefly of shallow bowls with perforations, which probably served as suspended lamps, as well as windowpanes of various types. Several other vessels, including beakers and bottles, were also recovered. The vessels are free-blown, simple vessels fashioned in colorless or bluish-green glass. Some are decorated in various techniques: three vessels (Fig. 2: 8–10) are mold-blown and twisted; one has an applied wound trail (Fig. 2: 10); and another has a pinched decoration (Fig. 2: 1). Several of the windowpanes are decorated (Fig. 4: 2–8).

The vessels and windowpanes date mainly from the Byzantine period, based on comparisons of the majority to those from other sites. Several of the types may have first occurred in the Late Roman or the Early Byzantine period. Some types were definitely also in use in the Late Byzantine and Early Islamic periods.

The comparisons drawn in this report aim to clarify the complete form of each vessel, as well as its dating and distribution. The discussion will first deal with the main types, and then with the finds from each site separately.[2] The figures are arranged according to types.

The Finds

Vessels

Bowls

Most of the bowl-shaped vessels found in the chapels were probably used as oil lamps. The shallow bowls with the perforations in the sides (Fig. 1: 1–8) and the decorated bowl (Fig. 2: 1) represent two different types of oil lamps. The two coil bases probably belonged to bowls, used as tableware (Fig. 2: 2, 3).

Shallow Bowls. The most common form among the vessels from South Sinai is a shallow bowl (Fig. 1: 1–8), characterized by a wide, slightly incurving, diagonally cut-off rim. It has rounded walls, and a rounded or flat base. Below the rim, holes were cut into the wall, intended for suspension chains. Though the bowls differ in width, height, the position of the holes in the wall and the type of base, they are all of the same type. The majority of the bowls are of colorless glass, but one is light bluish-green (Fig. 1: 7) and another is greenish (Fig. 1: 8). The bowls are all covered by a thick crust. The only bowl which could be almost completely restored has a flat base (Fig. 1: 1). Other fragments indicate that there were also bowls with concave bases (Fig. 1: 3, 6, 8). The perforations in the walls of the vessels are generally located about 1 cm below the rim; they are either vertical or horizontal and some are carefully cut and polished. Bowls of this type usually have three perforations.

This type was defined by Harden in his report on the glass vessels from Neṣṣana as a "plain 'inverted-bowl' lamp", dated to the fifth–eighth centuries CE (Harden 1962: 85, Pl. 28: 55). At that time, information regarding the type was very limited. Harden's classification was based on comparisons with a bowl-shaped lamp from the San Marco treasure in Venice. Barag

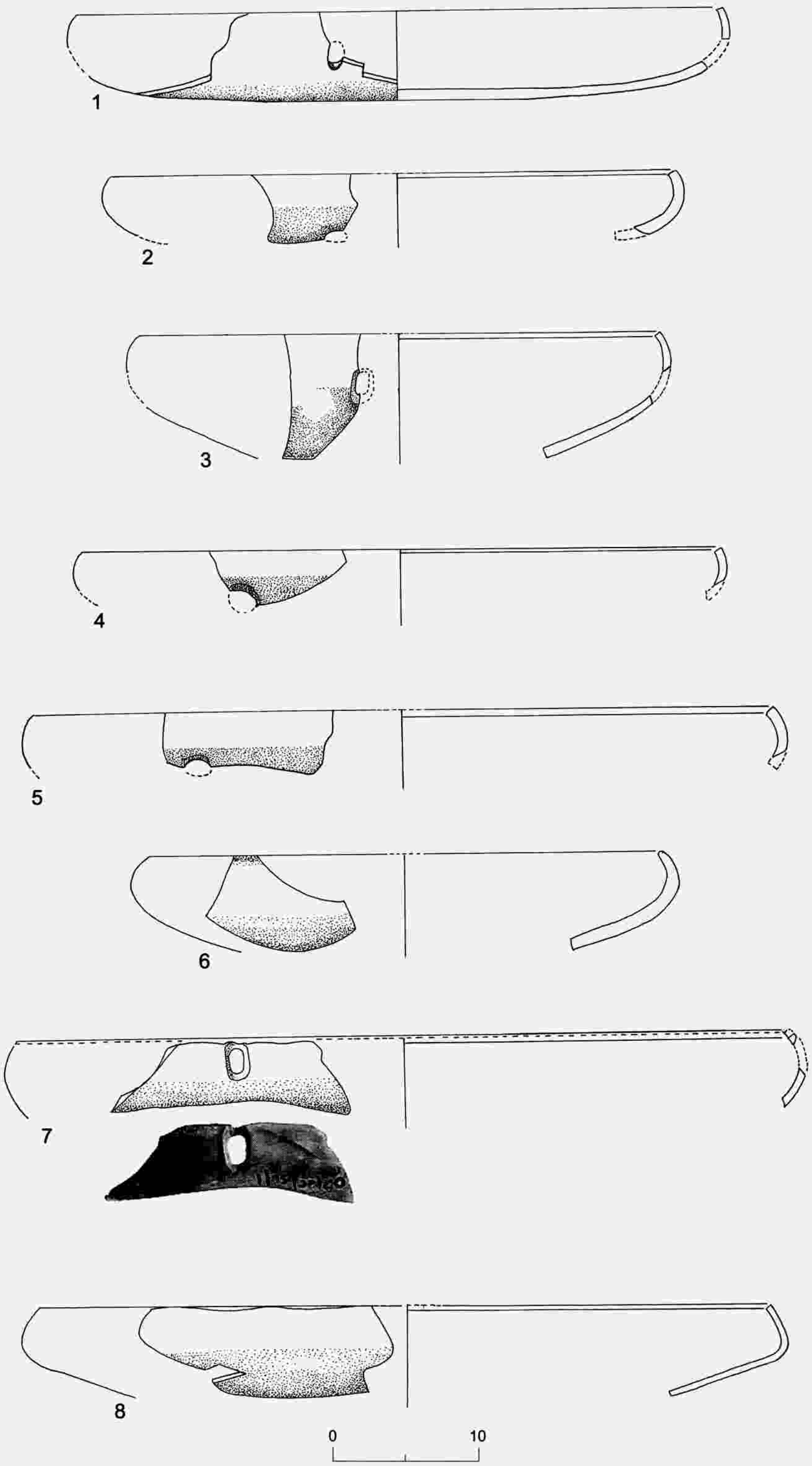


Fig. 1. Glass vessels.

← Fig. 1. Glass Vessels

No.	Site	Location	Basket	Vessel	Color
1	ʿEin Najila	Room 11	9	Bowl/oil lamp	Colorless
2	ʿEin Najila	Room 14	22	Bowl/oil lamp	Colorless
3	ʿEin Najila	Room 11	9	Bowl/oil lamp	Colorless
4	ʿEin Najila	Room 9	15	Bowl/oil lamp	Colorless
5	ʿEin Najila	Room 14	22	Bowl/oil lamp	Colorless
6	Sigilliya	Locus 1	37	Bowl/oil lamp	Colorless
7	Sigilliya	Building A, Room 1	13	Bowl/oil lamp	Light bluish-green
8	Sigilliya	Winery	41	Bowl/oil lamp	Greenish

points out that, at that time, this was the only published specimen of the type (Barag 1970: 186, Type 13: 19).

Today, bowls of this type are known from several sites. Some complete bowls were found in the excavation of a church in Beʾer Shevaʿ in a Late Byzantine, or perhaps even Early Umayyad context.[3] They have similar characteristics, including three holes in the wall. Similar bowl-shaped lamps were found in excavations at Givʿat Ha-Maṭos in Jerusalem,[4] in a Late Byzantine context, and also in the excavations in Area D of the Third Wall,[5] and at other unpublished sites.

Most of the examples cited above are of a similar quality of fabric and in a very similar state of preservation. They are thickly encrusted, usually severely pitted, in contrast with the silverish weathering or iridescent film which generally covers local Byzantine glass vessels.

This type of shallow bowl-shaped oil lamp probably developed from Late Roman decorated bowls, which were made of colorless glass, sometimes decorated with incised and cut decorations, displaying geometric or floral designs, inscriptions or crosses (e.g. a bowl from Samaria, Crowfoot 1957: 416–417, Fig. 97: 1), or with colored glass blobs. Most of them are thought to have been used as lamps (Crowfoot and Harden 1931: 202–203, Pl. 29:19–20).

Decorated Bowl. Only one almost complete glass vessel was recovered from the sites of South Sinai – a decorated bowl (Fig. 2: 1) found in Wadi Sigilliya. It has an incurving, outfolded hollow rim, with vertical walls and a flat base. Its pinched decoration consists of six vertical pinched protrusions, probably originally seven or eight. The general shape of the bowl and its rim is similar to

Fig. 2. Glass Vessels →

No.	Site	Location	Basket	Vessel	Color
1	Sigilliya, the Church Site	Church, Building A, 3	5	Bowl	Greenish
2	Deir Abu Mghar	Building A		Bowl	Bluish-green
3	Wadi Fraʿiya	Southern wall	2	Bowl	Colorless
4	ʿEin Najila	Room 7	17	Goblet/beaker	Colorless
5	ʿEin Najila	Room 15	19	Beaker/goblet	Colorless
6	ʿEin Najila	Room 5	7	Beaker/goblet	Colorless
7	Sigilliya, the Church Site	Church	20	Beaker/bowl/wineglass	Bluish-green
8	ʿEin Najila	Room 11	16	Oil lamp	Colorless
9	ʿEin Najila	Room 11	16	Bottle	Colorless
10	ʿEin Najila	Room 15	19	Bottle	?
11	Deir Abu Mghar	Building C	1	Bottle	Bluish-green
12	Sigilliya	Room 3	1	Bottle	Yellowish-green
13	ʿEin Najila	Room 13	12	Bottle	Green
14	ʿEin Najila	Room 15	19	Bottle/beaker	Light green
15	ʿEin Najila	Room 5	7	Bottle/beaker/oil lamp	Colorless

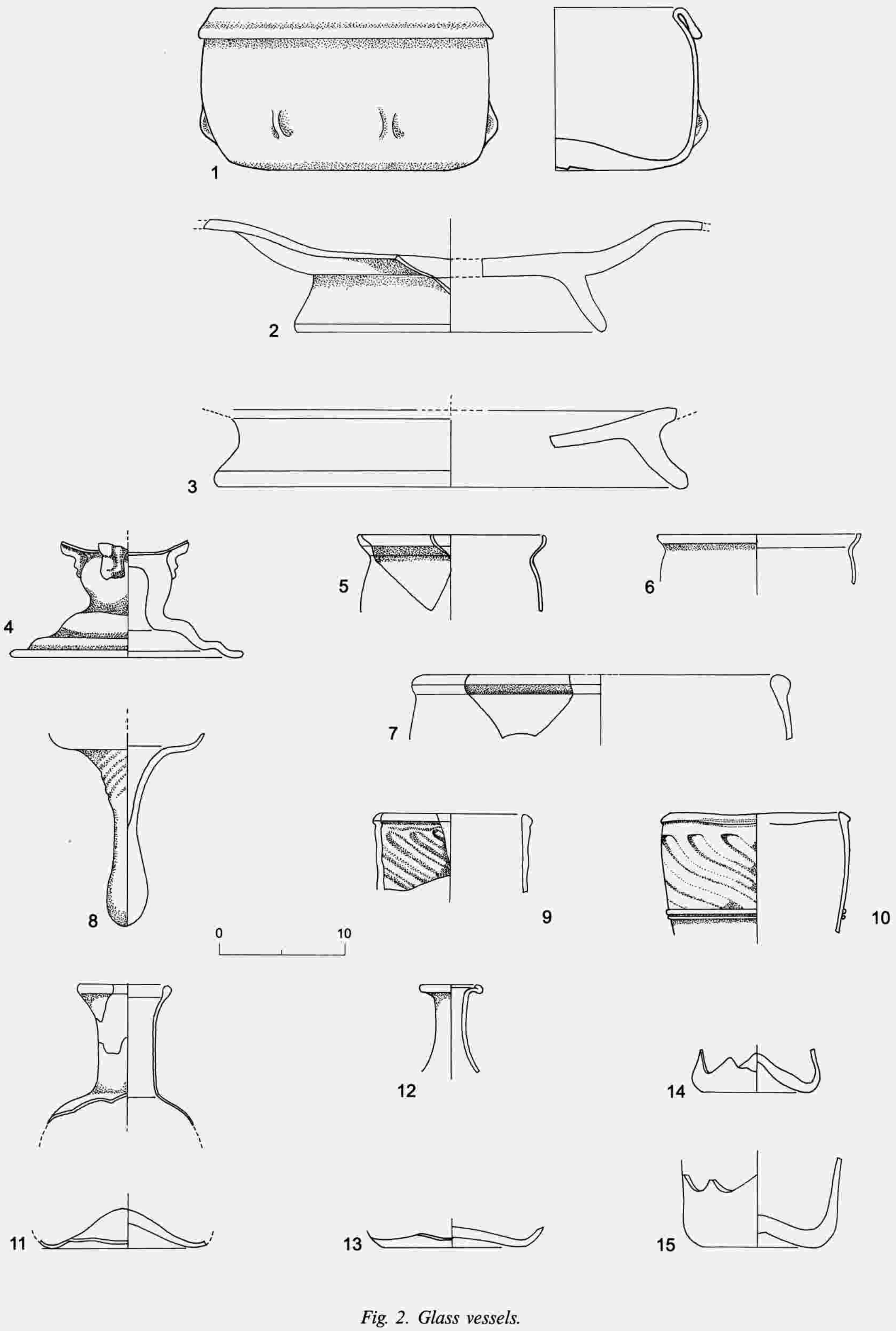


Fig. 2. Glass vessels.

the bowl-shaped lamps with outfolded rim characteristic of the Byzantine era. These bowls usually have three small suspension handles.

Parallels for this form were found in Cyprus in the seventh-century CE basilica at Kourion (Young 1993: 43, Fig. 5) and at Paphos (Fitzwilliam Museum 1978: 54–55: 110a).

Vertical or horizontal pinched ornamentation is common chiefly on closed vessels, such as bottles and flasks. Bottles with this treatment were found in Tomb 4 at Bet Yeraḥ, dated to the sixth–seventh centuries CE (Delougaz and Haines 1960: Pl. 50: 9), and at Jericho (Sellin and Watzinger 1913: 165, Pl. 45: III, 7). Pinched decoration first appeared toward the end of the Byzantine period and characterizes assemblages dated to the late sixth and seventh centuries CE[6] and continues into the eighth century. It also occurs on open vessels such as wine glasses (Auth 1976: 150, No. 195).

Bowl Bases. Two coil bases of bowls were found (Fig. 2: 2, 3). The type is characterized by a thick applied coil added to the bottom of a free-blown bowl, forming a high solid base. The bottom of the bowl is thickened and flat (Fig. 2: 2) or slightly concave (Fig. 2: 3). Bases of this type were common in the Late Roman and the Early Byzantine periods, and have been found in Egypt (Harden 1936: Pl. 12: 122, 130), North Sinai[7] and Israel.[8]

Goblets and Beakers

Only three small fragments of goblets and beakers were found, of different types. Fig. 2: 4, found in ʿEin Najila, is a high foot, probably of a large goblet, with a hollow stem and wide stepped base attached to a thin-walled body. It is an exceptional object, decorated in an unusual fashion. On the basis of two recently excavated goblets found in Israel (unpublished) – one made of cobalt blue glass decorated with a honeycomb mold-blown design, discovered in a Byzantine context in the church at Ḥorbat Kenes in Karmiel,[9] and the other, in the course of a salvage excavation in the fill of a Byzantine baptistry at Nir Galim, on the southern coast of Israel[10] – the following reconstruction is suggested: the vessel had a cut-off rim, a globular or barrel-shaped body, and a high hollow foot; three small handles were applied to the wall, forming small ears. Below the bases of the handles a glass strap, usually decorated with horizontal ribbing, was drawn down the sides of the vessel to the juncture of the body with the foot. Only the lower part of the decoration remains on our vessel.

A cobalt blue mold-blown 'footed bowl' with identical 'stubby hollow stem and flattened foot' was recently published in a catalogue of European and Byzantine glass entitled *Glass of the Dark Ages* (1995: No. 4, and see there for further references and discussion). The vessel, dated to the fourth century CE, is attributed a Syrian or Egyptian origin. It seems to be very similar to the vessel found at Ḥ. Kenes (see above). Lamm published a decorated goblet with a similar foot and ribbed glass straps along the sides, found at Raqqa, Syria (Lamm 1929–1930: 54, Pl. 12: 3).

The exclusive appearance of such goblets or chalices in chapels in the region enables us to suggest its use in church liturgy. Whitehouse (1997: 107) quotes several written sources referring to the use of glass chalices in Roman and early medieval times. The written sources, combined with the fact that all the excavated examples were found in churches or chapels, corroborate this assumption.

The source of this form may be Egypt of the Late Roman period, represented particularly by vessels from Karanis (Harden 1936: Pl. 17: 509, 511). This type has a globular body and a flaring rim, small applied handles drawn down the vessel wall; in some cases applied trail decorations were added. The vessel has an applied base, in one case in the form of a solid wineglass base, and in another an applied heightened coil ring base (Harden 1936: Pl. 17: 509, 511).

Goblets with mold-blown honeycomb decoration are closely similar to bowls which were very common during the fourth century in the Eastern Mediterranean, as well as the western provinces (for further discussion and references, see Stern 1977: 90–95). The continuity of the same shapes with the addition of a foot to create a richer and more elegant goblet shape, in some cases with decorated handles and trails, may also point to production in one of the central glass workshops in the Eastern Mediterranean. The fragments that were found in different sites in Israel may suggest a local Byzantine glass center.

Two flared and cut-off rims with a very thin wall were also discovered at ʿEin Najila (Fig. 2: 5, 6). These rims may be classified as belonging to conical beakers used as oil lamps or to a goblet-shaped vessel as Fig. 2: 4. Conical beakers of this type were very common in the Late Roman and Byzantine periods (fourth–fifth centuries) in Egypt (Crowfoot and Harden 1931: 196–197, Pl. 28: 1–3; Harden 1936: 155–166, Pl. 16: 436–460; for a comprehensive discussion of this type see Higashi 1990). The type was also found in large quantities in the North Sinai survey[11] and in various excavations in

Israel, particularly at Jalame, together with wasters of the same type (Weinberg and Goldstein 1988: 87–94).

Fig. 2: 7 represents the rim of a beaker, a bowl or a wineglass, slightly inturned, thickened and rounded. Rims of this type are characteristic of the Late Byzantine (sixth–seventh centuries CE) and Early Umayyad periods. They belong to beakers or deep bowls, and are sometimes decorated with applied fused-in trails, in a color different from that of the vessel.

Beakers and bowls of this type have been found at various sites. For example, a similar rim was found at Ashdod, in a Late Byzantine context. It has been suggested that this vessel was an oil lamp, based on body and base fragments found nearby (Barag 1967b: 36–37, Fig. 16: 14). Many rims of this type were found in Umayyad contexts, as yet unpublished, at Ramla, in excavations at Ḥ. Nevallat and in the Be'er Sheva' area,[12] mostly apparently belonging to bowl-shaped beakers.

Stemmed Oil Lamp

One conical lamp stem (Fig. 2: 8), thickened and rounded at the bottom, with the beginning of the bowl, was found in the South Sinai survey. This lamp type, usually suspended by a metal lamp-holder, is well known, and characteristic of Byzantine complexes (for discussion see Peleg and Reich 1992: 155–158, Fig. 18).

The lamp is exceptional in its delicate fashioning and the shallow twisted mold-blown ribbed decoration on its base. A similar although unadorned stem is known in the Al-Tur monastery, dated to the Byzantine period (Kawatoko 1996: 68, Pl. 37: 5).

Bottles

A few fragments of various bottles were found, including two rims of mold-blown bottles (Fig. 2: 9, 10). The vessels were blown into a ribbed mold and then twisted. The rims differ in their finish, and one of them has an applied wound trail on the neck (Fig. 2: 10).

Two similar fragments of bottles with simple mold-blown decoration were found at 'Aïn Ez-Zâra/Callirrhoé in Byzantine contexts (Dussart 1997: 100–101, Figs. 26: 13, 27: 13d). A rim similar to Fig. 2: 10, with mold-blown diagonal ribbing and an applied wound trail, was found in the church at Shavei Ẓion and dated to the Byzantine period (Barag 1967a: 66–67, Fig. 16: 6).

Apart from the rims described above, a bottle was found, of which the rim, neck and shoulder, as well as the low concave base, have survived (Fig. 2: 11), as well as a small bottle with an out-turned and in-folded rim, and a narrow neck, slightly widening toward the shoulder (Fig. 2: 12). The latter was probably a globular bottle, with an in-folded and flattened rim and short cylindrical neck. A bottle of this type was excavated in the church at Kursi, dated to the seventh century CE (Barag 1983: 37, Fig. 9:4). The type was assigned by Barag to the sixth–seventh centuries, with parallels from a tomb at Ajlun. This type of bottle is common in Late Byzantine to Early Umayyad glass assemblages in all parts of Israel.

Miscellaneous Bases

Three fragments of bases from various vessels were found (Fig. 2: 13–15):

1. A low, concave, almost flat base (Fig. 2: 13), probably from a bottle.
2. A small base with a pointed kick (Fig. 2: 14), from a closed vessel or a conical oil lamp. A similar base was found in St. Theodore's Church at Gerasa, classified as a 'tumbler-shaped lamp with a wide, flat bottom' (Baur 1938: 520–521, Fig. 17: 239). It should probably be assigned to the Late Byzantine–Early Umayyad periods.
3. A thickened concave base with straight sides, possibly from a cylindrical bottle, or perhaps from a conical lamp (Fig. 2: 15). A lamp in the shape of a cylindrical beaker with three handles was found at Gerasa and dated to the Umayyad period. Its lower part and base are very similar to this fragment (Meyer 1988: 212, Fig. 12: p). These so-called 'tumbler lamps' occur from the Late Byzantine to the Umayyad period.

Windowpanes and Frames

Windowpanes

Windowpane fragments constituted the most common glass find in South Sinai. Their state of preservation varied from site to site. In some cases only tiny fragments were recovered, in others, large window fragments were found, still in their plaster frames.

Three types of windows were distinguished:

1. *Round or Oval Free-Blown Windows* (Figs. 3: 1–5, 4: 1). These windows were made like a shallow dish with a thickened center, usually with a pontil mark, with rounded, sometimes thickened rims (Figs. 3: 3, 5; 4: 1); the glass was usually bluish-green. These windows belong to the well-known 'crown windowpanes' or 'bull's-eye' type. The glassmaker blew a globe, attached a pontil rod to its base, and cut the globe to form a glass bowl. He then opened out the bowl by firing and twisting it into a flat disk (for a detailed explanation of the tech-

niques, see Meyer 1989: 214). The rim is usually rounded and thinner than the center, which is quite thick, with a pontil scar in the middle (Fig. 3: 4).

The use of free-blown 'crown/bull's-eye' glass windowpanes in Byzantine public buildings and especially in churches and chapels is well known in the East. They occur mainly in large cathedrals or churches. In South Sinai, window fragments were also found in small chapels, where other glass finds were rare. These glass windows were evidently brought to the chapels from a

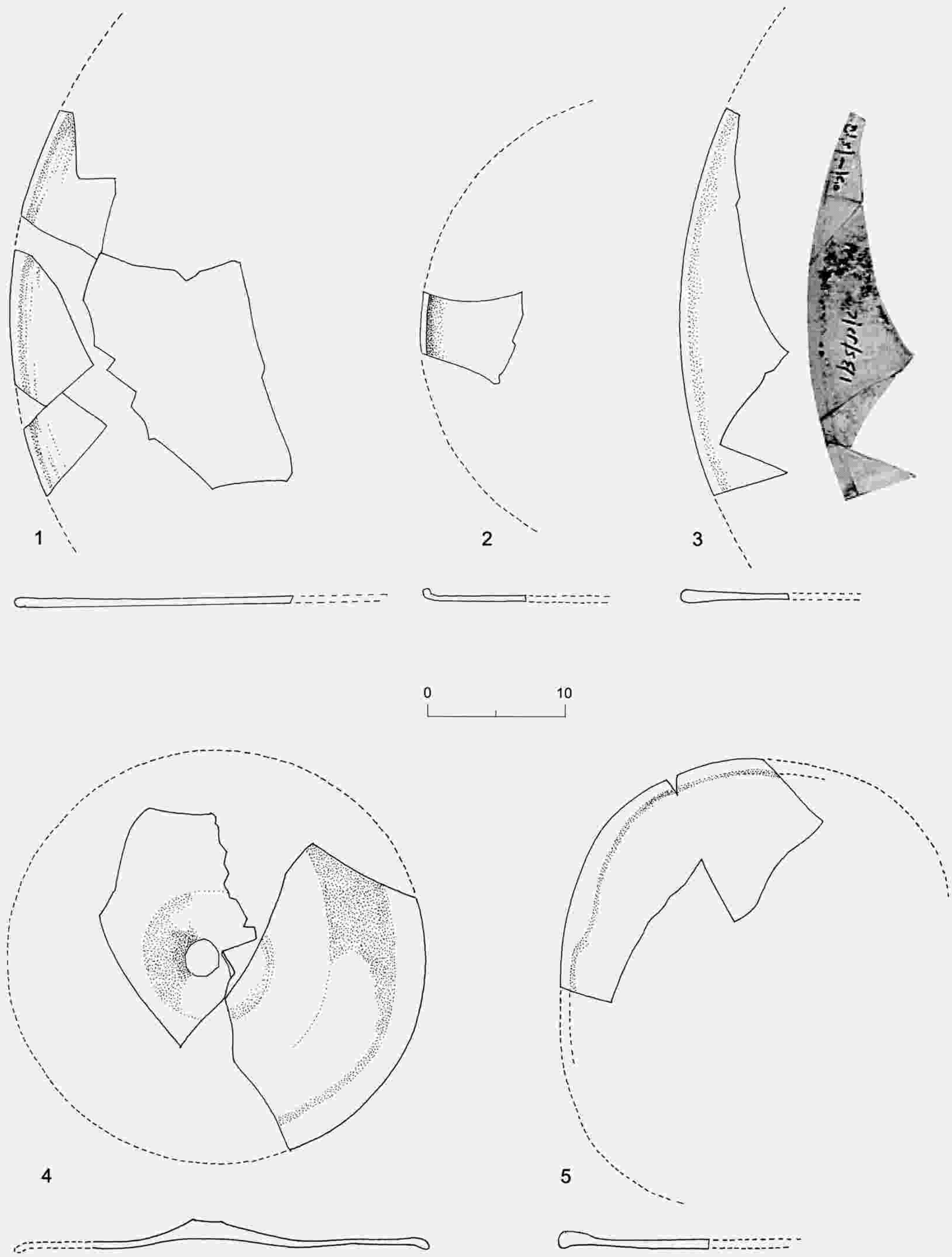


Fig. 3. Windowpanes.

← **Fig. 3. Windowpanes**

No.	Site	Location	Basket	Vessel	Color
1	Sigilliya, the Church Site	Church	7, 15	Window	Green (olive-brown)
2	Sigilliya	Room 2	32	Window	Green (yellowish)
3	Sigilliya, the Church Site	Church, L11	35	Window	Bluish-green
4	Sigilliya, the Church Site	Church, L7	12	Window	Greenish-blue
5	Sigilliya, the Church Site	Church, L7	12	Window	Greenish-blue

distance, probably from one of the Byzantine centers in the Negev or from Jordan. Glass windows were very popular at this period; they were cheap and readily available, so that even hermits who lived in modest, secluded conditions in the desert could use them. In the chapels they were probably necessary as protection against wind, dust and other climatic conditions, at the same time letting light into the structures.

Harden suggests that this type of windowpane "seems to have been invented there (in the East) in about the 4th century and to have moved thence to Italy, and much later – farther west. These panes were mounted together in plaster frames to fill the window-opening" (Harden 1972: 83). He provides some examples, dated to the fifth–sixth centuries from Gerasa (Harden 1972: Fig. 3: A, Pl. V: A, Pl. VI: A), and one example from Soba, Sudan, dated to the ninth–twelfth centuries (Harden 1972: Fig. 3: B), which is very similar in shape to the Sinai 'bull's-eye' windowpanes.

Since Harden's publications in the 1960s many glass windows have been published from the Eastern Mediterranean, chiefly from Byzantine or Late Byzantine to Early Umayyad contexts. Meyer discussed the window glass from Gerasa and distinguished different periods and techniques (Meyer 1988: 194–195, 207–211; 1989). Recently, she has readdressed the subject of the dating of crown glass windows, referring to Gerasa, Samaria, and some other fragments from various excavations. Meyer suggests that the crown panes may be from the time of Justinian's reign (527–565 CE) and not earlier, as attested in previous excavation reports (Meyer 1989: 215–219). Meyer states that St. Catherine's Monastery in Sinai, which also dates from the time of Justinian, retains crown panes in some windows (albeit of uncertain date). It is therefore plausible that the type was common from the sixth century to medieval times, often associated with churches (for examples, see Meyer 1989: 218–219; for more parallels from Nubia, see also Welsby 1992: 176–177, Fig. 2: 1).

We assign the finds from Sinai a Late Byzantine or Early Umayyad date, on the basis of the parallels cited above, as well as many other unpublished examples from various sites throughout Israel.

2. *Thick Flat Windows.* Only small fragments were found, made of colorless glass. Most of the fragments were plain and undecorated, and some bear unidentifiable designs on one side (Fig. 4: 2–8). They were decorated in a technique which over the years left a shallow incised pattern on the window's exterior. However, the

Fig. 4. Windowpanes

No.	Site	Location	Basket	Vessel	Color
1	Shaqif Ed-Deir	Chapel		Window	Bluish-green
2	Shaqif Ed-Deir	Chapel		Window	Colorless
3	Shaqif Ed-Deir	Chapel		Window	Colorless
4	Shaqif Ed-Deir	Chapel		Window	Colorless
5	Shaqif Ed-Deir	Chapel		Window	Colorless
6	Shaqif Ed-Deir	Chapel		Window	Colorless
7	Deir Antush	Building 1, A	4	Window	Colorless (greenish)
8	ʿEin Najila	Room 13	12	Window	Colorless
9	Shaqif Ed-Deir	Chapel		Muscovite window and plaster window frame	
10	Shaqif Ed-Deir	Chapel		Plaster window frame	

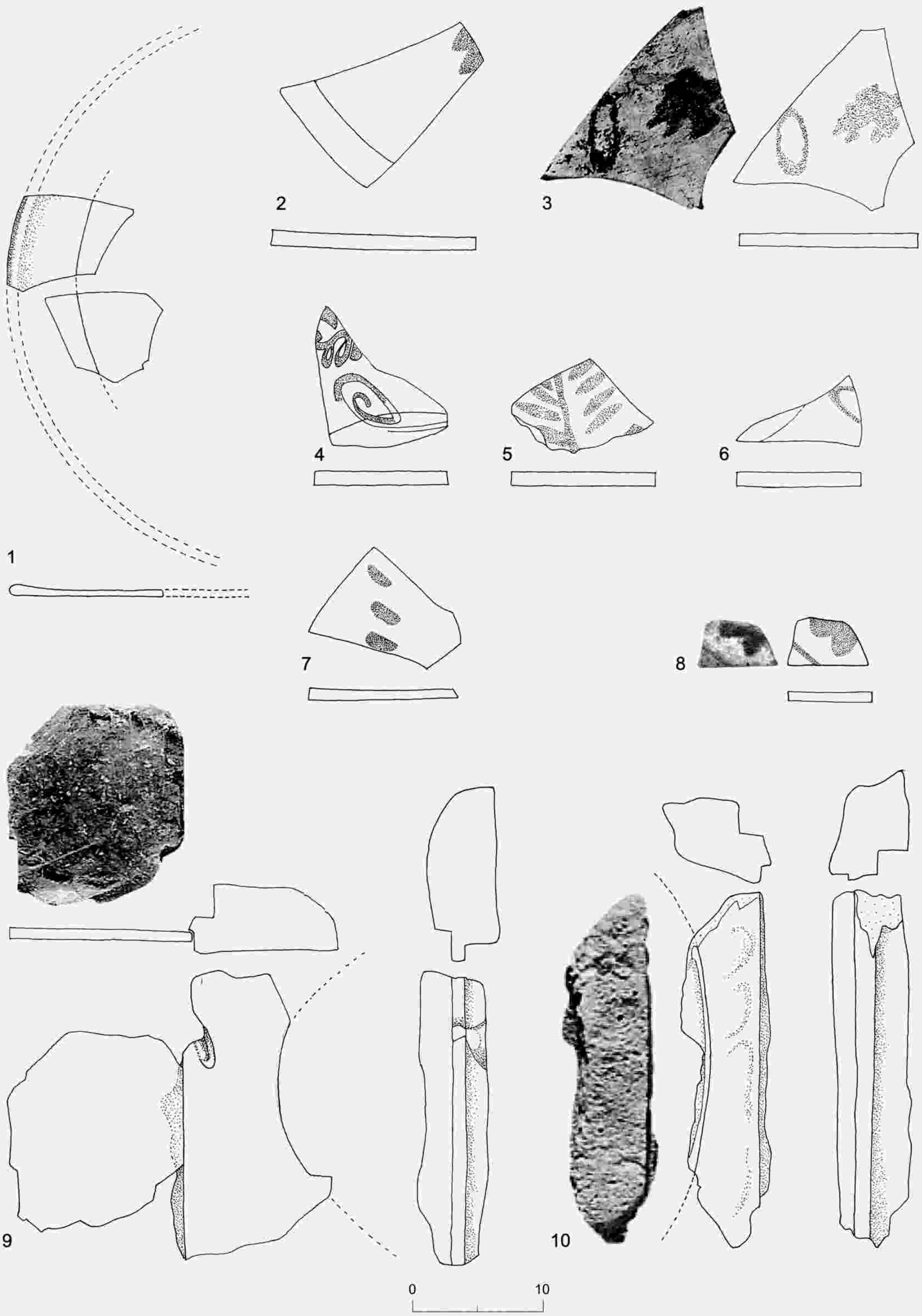


Fig. 4. Windowpanes.

fragments are too small and decayed to allow conclusive identification of the precise technique. We cannot be sure whether it was painted and fired, or scratched on the surface, but it is clear that what was left is not cold-painted color. These windows were probably produced by blowing a cylinder and opening it, and the result was a flat, thick windowpane (for further discussion of the techniques, see Meyer 1989: 214).

Although the decorated window fragments are very small, it is possible to compare them with the painted glass windows found in the palace at Khirbet Al-Mafjar (Brosh 1990). They were decorated with cold black painting on different shapes cut out from 'crown windows'. They were part of stucco vitrage from the Early Islamic period (eighth century; Brosh 1990: 254). The painted patterns there include geometric and floral elements bearing some similarities to the Sinai patterns, especially to the leaf pattern in Fig. 4: 7.

3. *Windows of Natural Material* (*Muscovite*). These windowpanes were made of small square shapes. One such square has survived in good condition, and two fragments were found from other windows. The windows were placed in square plaster frames (Fig. 4: 9).

These muscovite windows have no parallels in the region. However, square glass windows were probably in use during this period, as exemplified in the Khirbet Al-Mafjar painted windows from the eighth century (Brosh 1990: Fig. 3).

Square, rectangular and triangular glass windows in various hues have been found in ancient churches and small rural chapels of the seventh–eighth centuries CE in England. Examples include the finds from the sites of Monkwearmouth and Jarrow, which are reminiscent of the material from Sinai, and especially of the square muscovite windows (Cramp 1968: 16–17, Fig. 2).

Plaster Window Frames

Several plaster frames were recovered (Fig. 4: 9, 10), into which the windowpanes were set. Among the remains it was possible to identify circular, oval, square and rectangular frames. Some still retain fragments of the windowglass. Fingerprints are visible on the frames, probably from the pressing of the wet plaster around the window (Fig. 4: 10).

Similar round window (Fig. 4: 10) frames were found in the upper chapel in the monastery of St. Sabas (Mar Saba) in the Judean Desert (Patrich 1993: 237–238). In Samaria, a circular windowpane with rounded rim was discovered set in the original plaster, much decayed; it was probably made of clear greenish glass, with a rim diameter of *c*. 16 cm (Crowfoot 1957: 421). Very similar plaster frames were also located in Gerasa (Harden 1969: 82–83, Pl. VI: A), dated to the fifth–seventh centuries CE. Plain and decorated plaster frames from the Early Islamic period were also found at Khirbet Al-Mafjar (Brosh 1990, and see there for further information on the Islamic window frames).

The finds from Sinai, from other chapels in the Judean Desert, and from southern sites in Egypt and Nubia show that the glass windows were set in frames and placed in the wall openings. Sometimes plaster was used for the frames as in Sinai, but in other cases stone or ceramics were used, as in the cathedral at Faras, or even red bricks, as in Soba East (Welsby 1992: 177–178, Fig. 2: 2–4; see there for further references).

The Sites

The Wadi Sigilliya Sites. Fragments of glass vessels were found at the Church Site (Site 65), in the winery and in the winepress. The vessels comprise several types: shallow bowls with holes in their walls, which served as suspended oil lamps (Fig. 1: 6–8). The complete decorated bowl (Fig. 2: 1) discovered here was the only complete glass vessel to be recovered from the South Sinai sites. Other vessels at these sites include an out-turned bowl rim (Fig. 2: 7), a slightly in-folded bottle rim (Fig. 2: 12), and many window-glass fragments with rounded edges.

All the windowpanes depicted in Fig. 3 are from the church at Sigilliya. The windows are circular or oval. One of the fragments retains the center of the window, on which a pontil mark is visible, indicating that it was produced by blowing a parison and then splaying it out and flattening it. The edges of the windowpanes are all rounded. They differ in carination (see Fig. 3: 2) and in thickness (Fig. 3: 5). The windowpanes come in various translucent hues: bluish-green, yellowish-green, pale green with an olive-green tinge and greenish-blue. In addition to the windowpanes depicted in Fig. 3, other window fragments were also found in the church.

ʿEin Najila (Site 52). Approximately 150 glass fragments were retrieved, of which about 100 were body fragments. Identifiable fragments include pieces of shallow bowls with holes in their sides which served as suspended oil lamps (Fig. 1: 1–5). A fragment of a footed goblet, which probably had three handles, was recovered. As mentioned

above, this goblet is exceptional in the shape of its stem and base (Fig. 2: 4). Fragments from beakers or goblets with cut-off rims, which could have served as lamps, were also found (Fig. 2: 5, 6), as well as fragments from mold-blown and twisted bottles (Fig. 2: 9, 10), the latter with the applied wound trail below the rim. In addition, one base of an oil lamp with a solid, conical, very irregular base (Fig. 2: 8) was discovered, as well as three concave bases of various types: a low concave base, almost flat, from a bottle (Fig. 2: 13) and two bases probably from bottles or beakers: one with a pointed kick (Fig. 2: 14); and another with a low thickened concave base with straight, slightly slanting walls (Fig. 2: 15). One small, thick window fragment was uncovered on site, decorated in an unclear design (Fig. 4: 8).

Deir Abu Mghar (Site 40). Approximately 30 fragments were recovered from various buildings located at the site. Most were body fragments. A fragment of an applied coil ring-base from a large glass bowl (Fig. 2: 2) was found in Building A. A bottle, of which the rim, neck and shoulder, and the base (separately) survive, was discovered in Building C (Fig. 2: 11). This is one of the only vessels of bluish hue uncovered in a state of preservation similar to that of vessels from other sites in Israel, where they are coated with a crumbling silver iridescent layer. The majority of vessels from South Sinai, however, where covered with a gray crust. Several window fragments with rounded edges were also retrieved at the site.

Shaqif Ed-Deir (Site 58). About 25 fragments were found here, all from various types of windows. The plaster frames in which the windows were placed – square, rectangular, oval and circular – were also located (Fig. 4: 9, 10).

Examples of all three types of windows were known at the site:

1. A square muscovite windowpane in good condition, as well as two fragments of the same type. These windowpanes were probably placed in the square plaster frames also found at the site (Fig. 4: 9).
2. Fragments of round or oval free-blown windowpanes (Fig. 4: 1) with rounded, sometimes thickened rims. The glass is usually bluish-green.
3. Thick windowpanes of which only fragments have survived, made of colorless glass and decorated in various designs on the exterior, of which some were recognizably floral (Fig. 4: 2–6). As mentioned above, these windows were decorated in an unknown technique which over the years has left a shallow incised pattern on the window's exterior. The site yielded the largest and most variegated group of fragments of this type. On two of the windowpanes (Fig. 4: 4, 5) a vegetal design consisting of a branch with leaves was discerned, as well as a more complex design including spiral patterns as well. All the windowpanes of this type are colorless and covered with a weathering layer.

Wadi Fra'iya (Site 60). About 25 glass fragments were found at the site, mostly body or window fragments. Of these, one fragment was identified and classified as the base of a colorless glass bowl (Fig. 2: 3), common in the Late Roman and Early Byzantine periods, in Egypt and Israel.

Deir Antush (Site 54). About 30 fragments were found here, mostly small body fragments, as well as some window fragments. Among the latter was one fragment which was identified as part of a thick, decorated windowpane of colorless glass with a greenish tinge (Fig. 4: 7), covered by a layer of black and silver weathering. The decoration consisted of an irregular pattern of oval shapes incised on the exterior. The poor condition of the glass does not allow conclusive identification of the decoration technique.

Notes

[1] I wish to thank the excavator, Uzi Dahari, for entrusting me with the study of the glass finds. I also wish to thank the draftsman, Michael Miles, whose patience enabled us to make the most of the fragmentary material, Miri Weingarten for translation and Clara Amit for photography. The excavations and research at these sites were conducted in 1978–1979. The glass finds were examined in 1994, and were returned to the Egyptian authorities the same year; thus, the time alotted us was very brief; our discussion is therefore limited to typology and chronology, and did not permit chemical analyses and further study of the finds.

[2] Since the variety of types is limited, and repeats itself at most of the sites, we have first discussed the typology and only then presented each complex separately, in order to avoid unnecessary repetition.

[3] The salvage excavation of the church was conducted by the Israel Antiquities Authority, under the direction of Peter Fabian, who passed the glass finds on to me for research. Olga Schor restored these lamps.

[4] My thanks to the excavator, Elena Kogan-Zehavi (1995), who referred the glass finds to me.

[5] I am grateful to the Third Wall (Area D) excavators David Amit and Samuel Wolff, for allowing me to cite their finds (L119, B167; Amit, Wolff and Gorzalczany 1995).

[6] Pinching is a common form of decoration, and is known from many unpublished sites in Israel. An examination of many complexes excavated recently in Israel shows that pinching was a predominant decoration in the Late Byzantine period and the beginning of the Early Islamic period. Note that in Israel 'Late Byzantine' refers to the late 6th–7th centuries CE.

[7] I wish to thank Prof. Eliezer Oren, director of the North Sinai survey, at whose invitation Tamar Winter and I were able to study the glass finds before they were returned to the Egyptian authorities.

[8] This type is very common, and fragments have been found in many salvage excavations conducted by the IAA recently, as at Bet She'an, Caesarea and the Galilee (unpublished).

[9] My thanks are due to the excavators of the church at Ḥ. Kenes, Dina Avshalom-Gorni and Mordechai Aviam, for inviting me to examine the finds and for permission to cite this information prior to publication (Avshalom-Gorni and Aviam 1996).

[10] The glass vessels from Nir Galim were found in excavations conducted by Amir Gorzalczany (forthcoming).

[11] See n. 7.

[12] Information is by courtesy of the excavators Don Glick (Ramla), Alexander Onn (Ḥ. Nevallat), and Peter Fabian (Be'er Sheva').

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Appendix 3

A Textile from Deir Abu Mghar

W.D. Cooke and Orit Shamir

The sole textile submitted for analysis had been torn into many small pieces (Fig. 1). The largest fragment (3.8 × 1.3 cm) shows a 4/1 twill weave with twill reverse (a self-patterned textile with a rectilinear pattern formed by the contrast of warp and weft faces of a twill weave; Burnham 1980: 159) and has a density of 40/20 per cm. The yarns are fine and regular, 80–100 microns in diameter, and Z-spun to a medium twist from cotton fibers with diameters ranging from 6.5 to 11.0 microns (Fig. 2). There is evidence that some of the cotton was harvested at an immature stage, possibly due to drought.

The fabric appears to be 'new' – there is no evidence of crown flattening, crown abrasion or fiber fibrulation, which would have occurred if the fabric had seen significant use. There are also no traces of cleaning with an alkaline 'soap'.

The fibers show longitudinal and spiral splits, probably due to the thinness of the secondary cell wall and the subsequent carbonization (Fig. 3).

No other textiles with this technique of 4/1 twill weave with twill reverse (Fig. 4) are known from the Byzantine period.



Fig. 1. The texile.

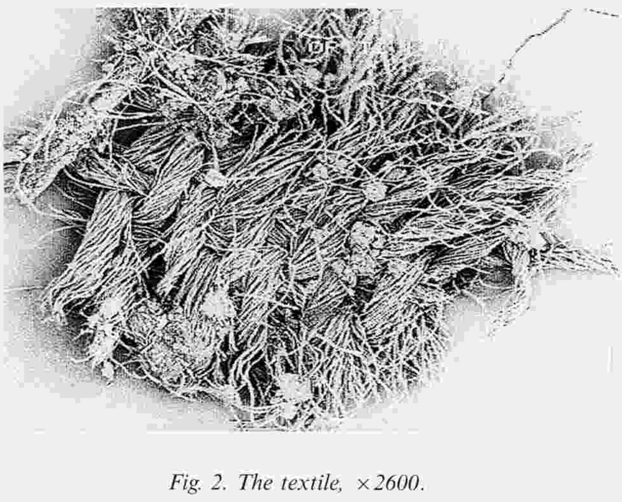


Fig. 2. The textile, ×2600.

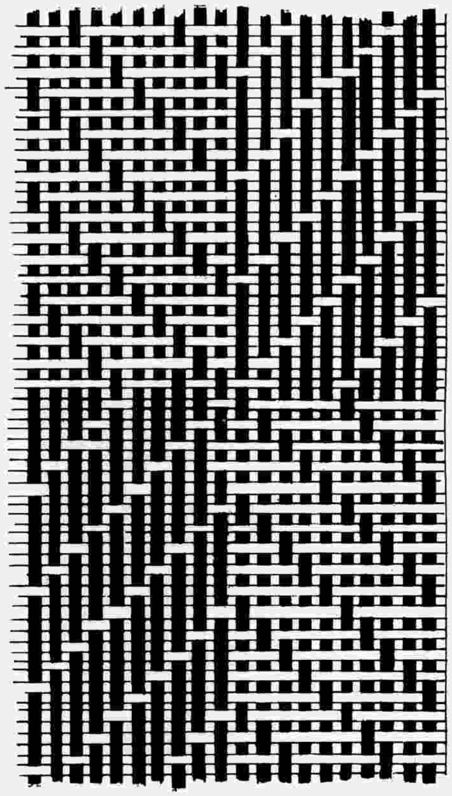


Fig. 4. *The technique.*

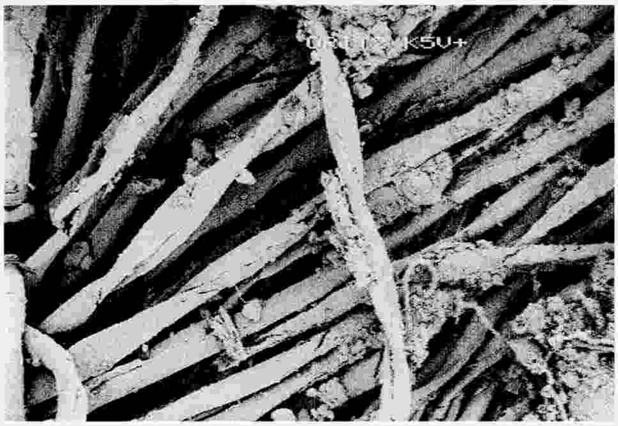


Fig. 3. *The fibers of the textile, ×3500.*

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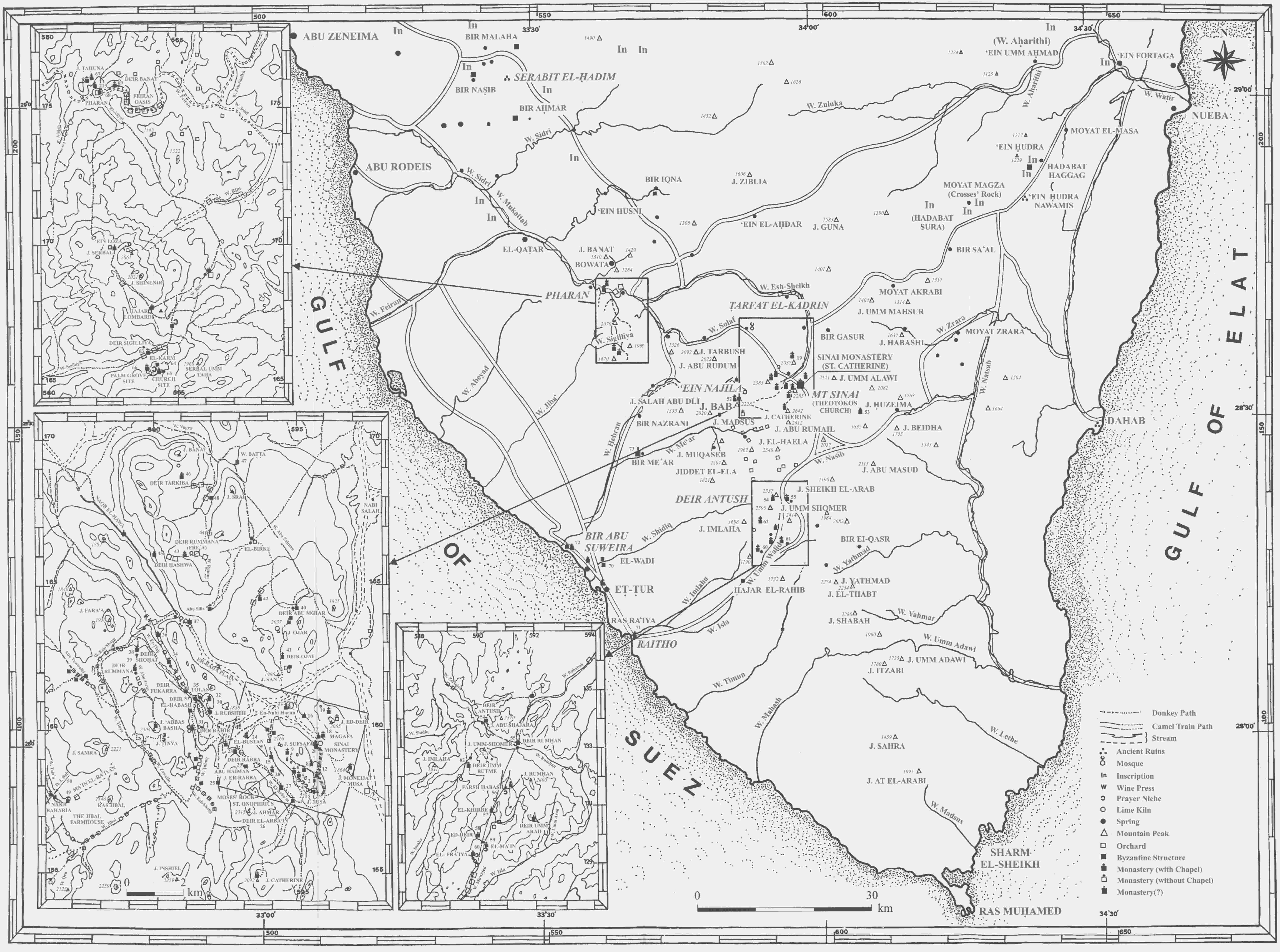
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THE SOUTH SINAI MONASTERIES IN THE BYZANTINE PERIOD



... once here and on Mt. Sinai
[illegible]
In the dwellings of His eminent followers, He [illegible]
[illegible]
For his presence is [illegible] terrible
[illegible]
The desert and mountain of His divine [illegible] He [illegible]
[illegible]
(Ephrem the Syrian)

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